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Supervisory Management

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AMERICAN MANAGEMENT ASSOCIATION

"This I Believe..."

Responsibility for Leadership

By Dale Yoder

THE FOREMAN TODAY has a many-sided assignment. He must have skill and competence in the operations to be performed under his direction. He must set and maintain standards of performance in terms of quantity, quality, and the control of waste. He must be able to appraise the skill, competence, and contribution of the men he directs. He must be able to make decisions and, at the same time, create an assurance of fairness and equity for each of the members of his team. He must help team members. He must stimulate and motivate them. He must plan, control, and lead.

Above all, the supervisor must be a leader of men. The essence of his job—as of that of all managerial positions—is to get others to do whatever work is to be done. His leadership may vary from the simple one-to-one relationship of Robinson Crusoe and Friday to the supervision of groups of five, ten, twenty, or more; but the responsibility for leadership is inherent in all supervisory jobs.

—from *Personnel Principles and Policies*

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Supervisory Management

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IF THE JOB ISN'T FINISHED

...IT HASN'T BEEN DONE!

By Ivan L. Huffman

Specialist, Manufacturing Administration
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People may pass part of the buck unless they know you expect a finished job every time.

TWO WORKERS were assigned to unload liquid chemical from a tank car. When their supervisor later checked on their work, he found some of the chemical still in the bottom of the tanker. The residue, worth several hundred dollars, would have been wasted if the supervisor hadn't discovered it.

"Why didn't you empty the car completely?" he asked with annoyance.

"Because," one worker explained, "not all the stuff would come out. We took what we could get."

The two workers should have reported the problem to their boss. Or better, if they were competent to do so, they should have investigated the cause of the problem. Still better, they should have tried to solve it.

Instead, they did only a superficial job of emptying the tank car, then gave up. They actually failed to finish their work.

What is finished work?

"Finished work" may be defined as work that is done properly and thoroughly. It requires working to the best of your ability and leaving

nothing within your power or proper domain undone or incomplete.

The term "finished work" pertains to *your* part of the job, whatever it is. You can do finished work on your segment, even though the job itself may be completed by someone else. Thus, a worker on an auto-assembly line can do finished work on his particular process—say, attaching fuel tanks to frames—even though the car itself isn't completed until it reaches the end of the line.

Where to apply it

Just as the supervisor must require finished work from his subordinates, he must require it of himself. He should apply the concept to everything he does, everything he says or explains, everything he thinks through or plans, everything he writes. In other words, the supervisor should be thorough and conscientious in every facet of his job.

For example, finish *all* written material that you transmit, whether it is a memo, a company form, a written question (or answer), or a letter. To make sure that writing is complete, consider the subject completely—i.e., do *finished thinking*.

Similarly, finished reading is important if you are to assimilate *all* necessary details of printed matter. As you read, don't anticipate or jump to conclusions. Instead make a conscious effort to understand exactly what the author is trying to say. Leave the steering to him!

When you listen, also make sure that you get the point—and get it accurately. If you're not sure you can figure out the message, ask questions—or state in your own words what you believe the meaning to be. It does little good for the other person to do finished work in his talking unless you do finished work in your listening.

Do your share

To do finished work, then, means to do your share of the job. It describes not the amount of work as much as your thoroughness in performing it—however big (or small) the task may seem. It means being conscientious, complete, and painstaking in whatever you undertake.

Finished work requires that you do your share:

1. Totally—so no one need "cover" for you.

2. Properly—so no one need "sweep up" after you, do it over again, or even check to see that you've done it.

3. With intelligence and discretion—so that you're not doing other peoples' work, overextending your authority, trespassing on others' rights or responsibilities, or overemphasizing petty details.

Finished work has great advantages for both employer and employees. As one manager has said:

"For one thing, finished work saves the costs of picking up again on unfinished jobs. For another, it is contagious; if you finish one job

correctly, you'll want to finish others. And if one supervisor and his men perform finished work, other supervisors and *their* men are likely to follow suit. Thus, finished work improves relationships between people in different groups because it makes the job easier for everybody. And, finally, finished work is work to be proud of."

How to get it

Let's consider the problem of getting finished work from subordinates. Assume you have a job—say, repairing defects in a special order—that requires two men.

First, you must perform finished work in telling them what to do. Instead of issuing vague, fuzzy instructions that leave doubt, make your directions clear, accurate, and complete. Use words the men understand. Give any special directions that are necessary ("This tank has to have special markings so two extra valves can be inserted"). Provide them with all equipment and documents they may need ("Here's the work order"). If appropriate, tell them what to do if they encounter problems ("Watch these seams in front. If they don't seem tight, resolder them"). Advise what to do in an emergency ("If you need me, I'll be in the office").

Above all, make *sure* that the workers understand. They can't do a finished job unless they know what you expect. If you're sure they do know, you'll have less trouble later in judging their performance.

Follow up

You can't just hand out the assignment and then forget it. You've got to follow up. If your men are properly trained to perform finished work, they will report that their assignment is completed—verbally, in writing, or perhaps by initialing a form. In any event, put a note in your tickler file to check that the job actually *is* finished, and to evaluate its outcome.

Besides reporting the completion

Have They Done the Job?

Here are some pointers to help you make sure your subordinates turn in finished work:

1. Give clear, complete, general instructions.
2. Give any special instructions that are necessary.
3. Provide all necessary equipment and documents.
4. Tell employees what to do if they encounter problems.
5. Make sure they understand.
6. Follow up.

of their work, your men should also be thorough in: 1) planning the job before they tackle it; 2) getting necessary tools; 3) performing the operation to the best of their ability; 4) assuring themselves, through testing or double-checking, that the job really is finished; 5) cleaning up afterwards; and 6) putting away their tools and properly disposing of excess materials.

Nothing less is acceptable. Employees will usually do at least this much if the supervisor performs finished work by exacting finished work from them. The supervisor should inspect, follow up, and insist until his men are trained to deliver finished work. Even then he must continue to perform spot checks to maintain the practice.

In case of fire

What should you do if your men don't complete their assignments properly? How should you "put out the fire"?

Assume that they did the actual work well enough, but neglected to clean up afterwards. You're obligated to call them back and to show them where they failed. Praise whatever part of their performance warrants it. Explain that they did a good job, as far as they went. "But," you might point out, "you didn't go far enough." Show how the job must be finished.

It is also important to tell them when they *have* accomplished your standard of satisfactory work. Therefore, follow up a second time. If they did finished work this time, praise them. If not, again show them why not—and send them back.

After the job is done—and properly done—mark it off by initialing a check list, or making a note in the log, or reporting to the person who requested the job in the first place. If you neglect this final step, someone may waste time by doing the work all over again.

The real savings of finished work should now be evident. If everyone does his part properly the first time, there is no need to go back over it again and again.

Performing finished assignments

Consider another area in which finished work is important—an assignment given you by your boss. Let's assume he asks you to plan and execute an improved arrangement of raw materials in a work area.

Before you begin, you must make sure that you understand the assignment.

Next, plan your action *before* you begin it. Then follow the same basic steps that you would expect your subordinates to follow when they perform work for you. Obtain the necessary tools, materials, and manpower; do the job; make sure it's done right; perform (or have performed) any cleanup that is necessary.

While you're working on the

project, there's obviously no need to run to the boss every time you meet a problem. If you do, he might as well do the job himself, for you're avoiding all the decisions he's delegated to you.

Progress reports

It is necessary to keep your superior informed of your progress, however. State your progress or your problem clearly and concisely; don't make it as shapeless—and endless—as a bull session. Illustrate how things are going. You may want to present items like:

1. A well thought-out statement explaining what is required to solve the problem. Include all information that your boss will need, none that is extraneous. Whether your report is oral or written, think it through carefully in advance to avoid a garbled presentation.

2. Graphic illustration. In the case of raw-materials storage, you might present a sketch of a new kind of bin, a floor plan showing revised layouts, or an illustration of a new stacking method. In other cases, you might submit maps, charts, or graphs. Whatever illustration you use, it needn't be fancy as long as it's clear and descriptive—and, of course, an asset to your presentation.

3. If your proposal needs further documentation (for example, a contractor's rough estimate of construction costs) or the filling out of forms (a requisition), have them ready, too. Then, all your boss needs to do is look at the evidence, consider its merits—and approve or disapprove.

4. If your proposal requires explanation to or clearance by managers still further up the line, submit any necessary documents—a memo, a letter of explanation, a request for approval—for your boss's signature. If he approves, he can sign these and immediately send your proposal on its way. If you do this, be sure that your work is finished: that it is in good enough shape so that your boss *can* sign—and use—the documents you have prepared.

You're the expert

In any but the most routine cases, few superiors would approve and sign a proposal without at least a question or two. You'll be prepared to answer them if you've done finished work, however, for you'll have considered all angles.

As you establish a reputation for finished work (whether in completing an assignment or instigating a project independently), your boss will ask fewer and fewer questions. This isn't surprising, for he'll grow to think of you as someone who gets to the bottom of a problem, considers all possible solutions, and selects the best one. He'll take your word as an expert—the man who knows more about the problem than anyone else.

And the supervisor who becomes known for finished work is usually

ready for a more responsible position.

Suppose you don't?

Obvious as it may seem, the other side of the picture is worth a quick glance: If you *don't* present finished work, the boss soon discovers that, too. Once he finds a hole in any project, opinion, or proposal, he'll wonder if there aren't more, and start to look for them. If he finds more, he's almost certain to return the project with the request, "Do more work on this." You'll not only lose out on its immediate acceptance, but you may also have a strike against you when you submit your next proposal. The boss may expect to find similar flaws.

There's a rule of thumb that seems to apply to all kinds of work, no matter how much individual cases may vary.

- If the job is *finished work*, it is *satisfactory*.
- If the job is *satisfactory*, it is *finished work*.
- And, the reverse: if a job is *not* finished work, it is *not* satisfactory.

The quiz test

The surest test of finished work is this question: "Have I left anything for anybody else that I should do?" Unless you can answer with an unqualified "no," you haven't finished the job.

If you're in doubt, look at your own performance from the point of view of the person who receives it: Was the job performed in its entirety? Was anything left out—or up in the air? Are all questions and problems covered?

Determining precisely how much you must finish may require discretion, of course. Perform only the tasks that are properly yours, as determined by your job description, your sense of responsibility, and, to some extent, the specific circumstances.

For example, a supervisor needn't actually operate a machine (except, perhaps, in a training demonstration or some relatively unusual situation). His job is not to perform, but to supervise performance; and it is in this area that he must be thorough.

There's no need to go into ridicu-

Keep Your Boss Informed

Though you shouldn't hand a job in to your boss until it's finished, you should keep him informed, via progress reports:

- Explain what is required to solve the problem.
- Include sketches, charts, graphs, further documentation (estimates, memos, etc.).
- Be ready to answer questions.
- Remember to consider all the angles: *You're the expert!*

lous detail or to take pains that the job does not require. When it is satisfactory it is finished.

Inaugurating finished work

The supervisor who is not in the habit of doing finished work may find it hard to start because he will have to make some significant changes.

He must start correcting and training his men—which may pose problems if they are accustomed to more independence. He must dig for his own answers, rather than seek them from associates or superiors. This, too, may seem like a heavy burden, especially if he is used to picking up the phone and getting someone else to solve his problems.

Nevertheless, finished work is gratifying, rewarding, and certainly worth the trouble. In doing the job right, you learn a lot that will help you do the next job. You learn to look for answers. You learn how to use and judge different sources, such as procedures, letters of instruction, pamphlets, dictionaries, encyclopedias—some of which you may not now be using properly, if at all. Finally, you learn to place greater emphasis upon thinking and acting for yourself. In the long run, these practices can make your job of supervising infinitely easier. ♦

How To Do a Finished Job

1. Plan the job in advance.
2. Get the necessary tools, materials, manpower.
3. Do the job.
4. Check to make sure it's been done right.
5. Clean up and follow through.

How Do You See Your Job?

AN EXTENSIVE STUDY made by Dr. Stanley Seashore of the University of Michigan shows conclusively that high productivity depends upon group effort: on people working together in an efficient and effective manner. Differences in productivity and employee satisfaction are related to differences in supervisory practices. Differences in employee morale and productivity are related to the way the supervisor does his job. The supervisor who is effective in both production and morale tends to see his job primarily in terms of human problems, of the management and support of people—not in terms of rules, procedures, technical efficiency, and direct pressure for productivity.

—JOHN A. PATTON, President, Management Engineers, Inc.
(in a speech given at the Mid-Year Conference
of the Super-Market Institute, December, 1958)

TALK to get RESULTS

By Lionel Crocker
Chairman, Department of Speech
Denison University

"Only talk"? But your job depends on it.

YOUR JOB five years from now may largely be determined by the way you talk!

How come? Well, consider:

Your contact with others—subordinates, for example—is mainly through talk. You probably give most of your orders and direct your staff verbally. Do you get your message across *and* in the way that you intend?

One prominent business leader explains: "The ability to speak and convince others—this is the crucial test of leadership in its broadest and, I think, *finest* sense. . . .There are no written techniques that can compare in effectiveness with the personal spoken word of an articulate, sincere, and frank man."

Most of your important encounters with higher managers—the people who may promote you and who, thereafter, will be among your associates—are probably at meetings, discussions, and conferences. The impression these people have of you is obtained largely by the way you speak.

In fact, oral communication is so basic a part of management that many companies specially train managers in it. Whether the course is called "Public Speaking," "Debate," or "Effective Presentation," it boils down to talking to other people effectively.

And managers find this training tremendously valuable.

Five thousand businessmen were

surveyed to find out which of the courses they had taken in college they valued most. Public speaking (spoken communication) and English literature and composition (written communication) tied for first place. Thus, the men rated communication as more important than obviously business-related subjects like general accounting or economics.

Let's see what makes spoken communication effective. We can start by examining some of the barriers.

The following attitudes, often encountered among speakers, are obstacles to good communication.

The superior attitude

No one wants to be talked down to; no one likes to feel inferior. (Instead, we want status—recognition that we are individuals with specific merits.) When a person who speaks to us makes us feel inferior, we're inclined to project our resentment toward him and, by extension, toward whatever he may be saying.

Probably few superiors, in addressing subordinates, deliberately set out to make them feel inferior. What can happen, though, is that a person who feels unsure of himself tries to cover up his uncertainty. He usually overdoes it.

On the other hand, people who are genuinely secure seldom need to demonstrate their status. In the realm of ideas, no one is absolutely superior—or inferior. We've all had some good ideas and, probably, some poor ones. Pulling rank won't help production; ideas must be weighed in terms of their merits, not their source.

The dictatorial attitude

The dictatorial or authoritative attitude also tends to impair effective communication. Ideas simply do not flow in an atmosphere of laying down the law, of "take it or leave it," of "I know a lot more about this than you do." People naturally resent this attitude and will often go out of their way to defeat it.

Moreover, dictatorial supervisors tend to create a staff of yes-men. The manager must allow subordinates to make suggestions, raise questions, share in decisions, or wield the authority that has been delegated to them. Otherwise, he's inviting employees to stop thinking and to lapse into this easy response: "The boss is going to do it his way, so what difference does it make what I think?"

Indifference

Indifference hamstrings communication. It shows up in a lack of enthusiasm, preoccupation with other matters, or even boredom. The supervisor who is indifferent to his own words automatically encourages indifference in his employees.

Good attitudes are equally con-

tagious. If a supervisor shows genuine enthusiasm, some of it will rub off on his audience.

Lack of cooperation

Conversation, it's been said, is give and take. The speaker gives out words, while the listener takes them in (provided he has the incentive). Then, the listener may give out words in return.

The best way for the supervisor to maintain this give and take is to show listeners that he, too, can listen.

The only way to listen is to listen. It's not enough to nod your head or say "yes, yes," while you think of other matters—or of what you're going to say in reply. Take pains to hear and understand an employee's idea. If it's practical, say so—and *adopt* it! If the suggestion needs changes, point out why; perhaps the employee can make the change himself. If the suggestion just doesn't cut ice, the employee has a right to know that, too—and why.

Clash of personalities

Communication may also be thwarted by a clash of personalities. Occasionally, the conflict is a serious one, based on unreasoned hostility, envy, jealousy, distrust, or ambition. If it is, the supervisor might turn to a third person: his boss, someone in the personnel or employee-relations department, the company doctor.

More often, however, it's a question of people's "rubbing each other the wrong way." The supervisor should be sensitive to that kind of conflict; once he recognizes it, he should be able to handle it himself. It may help to talk it out, to try to understand personal differences.

Even if the conflict can't be fully resolved, you still have to work together. Try to focus on the ideas to be discussed—not on the people discussing them. Above all, try to focus on the mutual goal—to get the job done.

Consider the two executives in one manufacturing plant who feuded from afar. Both were fine men and excellent managers, but neither could tolerate the other. They wrangled in memos. Their subordinates were subtly encouraged to cut across lines of authority.

The company president felt that

Creating a Positive Atmosphere

Ideas thrive in a positive atmosphere — and communication becomes a lot easier. Here's how:

Be approachable.

Ask questions; dig for the facts.

Believe in communication—don't just pay lip service to it.

Be honest—and admit your own mistakes.

neither man knew the other well enough, so he put them on the same, important committee where they were forced to work together. What each man had earlier seen as "stubbornness" in the other became "perseverance" when it was directed toward their mutual task. It wasn't long before their antagonism disappeared.

Vagueness

Poor communication also occurs when people aren't talking about the same thing. If the subject under discussion is poorly defined or vaguely stated, each person may interpret it in his own way and go on from there. Therefore, state clearly and exactly what it is you're talking about—and make sure it's understood.

Fill in the details

The communicator has the responsibility to supply any background information and details that he feels may be needed. In general, don't overestimate the information employees have.

On the other hand, never *underestimate* an employee's *intelligence*. Once you have provided a clear explanation, the subordinate can probably understand the point. Talking down, showing annoyance, or discouraging questions may indicate that the supervisor himself is uncertain. If he is, he should investigate and get the facts before he tries to explain them to others.

In group communication, it's safe to assume that if anyone *can* misunderstand, someone *will* misunderstand. A speaker must use words carefully, to get his meaning across.

Use words carefully

The supervisor who hopes to be understood by his employees must pay special attention to the following types of words.

1. Equivocal words—can be interpreted in more than one sense. Consider the word *radical,* for example. It can mean "original," "fundamental," "extreme," or politically "left-wing."

The supervisor who says to employees, "Here's a *radical* new plan sent down to us from the vice-president" obviously invites misunderstanding—unless he explains his statement.

2. Relative words—can be interpreted any way the listener prefers. Consider the word *tall.* A very short man probably has a different concept of *tall* from that of a very tall man, and neither's version may agree with that of a man of average height. There are many relative terms: *short, hot, cold, slow, fast, thick, thin*—to name a few. An effective communicator will be careful to specify exact degrees of tallness, shortness, hotness, coldness, and so on.

3. Labels—denote general, but indefinite, groups, such as *agitators, hard workers,* or *right thinkers.* The meaning of such terms is usually

determined by the listener's prejudices. His version of, say, a *right thinker* may not at all match the speaker's version. And attempts to clear things up—once the label has been used—may lead only to further argument.

4. Abstract words—represent abstruse or theoretical concepts rather than concrete, particular things. Their meanings may vary from dictionary to dictionary and, almost certainly, from listener to listener. Each man interprets such words by his own definition.

Here are some abstract words: *democracy, communism, justice, truth, beauty, goodness, poverty, liberty*. Using such words without definition when you are trying to convey a simple, straight meaning may get you into trouble.

5. Emotive or projective words—carry strong feeling as well as meaning. They have a way of substituting one man's opinion for the facts. A speaker who says "It's a lousy idea," "He's *narrow-minded*," "He's a *swell* guy," is communicating his personal bias. Words like these tend to distort, rather than clarify, communication.

Emotive and projective terms also tend to distort personal relations: *The supervisor who commits himself to an open expression of his personal attitudes is automatically inviting listeners to go along with his attitudes—or be relegated to the enemy camp.*

6. Incomplete terms—require amplification or modification to explain their meaning. For instance, *beneficial* or *effective*. Beneficial to whom? Effective for what purpose and under what circumstances? The speaker should either complete the meaning by providing such explanations, or use other, more exact words in the first place.

Timing

The supervisor must determine the best time to call his employees together for a discussion or a meeting. Sometimes a casual, spur-of-the-moment meeting brings the best results. But don't be too casual! People called into a meeting just a few minutes before quitting time may be distracted from their interest in the subject by a conflicting interest—to get out and go home.

Now that we've considered some of the barriers to effective communication, let's consider two factors that can facilitate it—first, building a positive atmosphere, and, second, presenting ideas properly.

A positive atmosphere

Proper over-all supervision is one of the best means of promoting ready communication. Self-evident as it may seem, the supervisor who shows genuine interest in his subordinates, and who is considered helpful and friendly, will have comparatively little trouble with communication.

Here are several additional ways in which the supervisor can create

a positive atmosphere for the exchange of ideas:

- *Be approachable.* The boss who makes it easy for subordinates to talk to him will soon find that they do talk. Other supervisors, who may boast that they have an open-door policy, nevertheless keep employees away by barriers of aloofness, coldness, or sternness.
- *Question.* If employees don't come to you, go to them. Don't stand on false dignity ("I'm the boss. It's not my place to seek out subordinates.") In fact, the good supervisor will not hesitate to go more than half way if it means getting to the roots of the matter. When you go to others, be willing to learn facts, not just to lay down the law.
- *Believe in communication.* Don't just pay lip service to it. Try all means at your disposal to open the channels between yourself and your employees.
- *Be honest.* Be ready to admit it when things are not as they should be. No organization is perfect, and people do make mistakes. Once you uncover inadequacies that you can correct, however, take steps to correct them—in a realistic manner.

It must be obvious by now that there is much more to communication than presenting and selling ideas. Nevertheless, a supervisor does need to be able to present ideas—and to persuade listeners of their validity.

An idea or proposal may be presented either directly or indirectly.

Presenting an idea directly

Direct presentation permits you to state the problem, discuss what you hope to achieve by solving it, and present your proposed solution. The next step may be the longest and should certainly be the most thorough and convincing: explaining in detail the reasons for proposing this particular solution.

Finally, summarize the main arguments to present the over-all message—in a nutshell.

The people you talk to may immediately accept your reasoning—or they may have different ideas. There is *no substitute for hearing out these ideas.* Listen carefully, then restate the arguments to make sure you have understood them. Accept any modifications that are improvements. Then restate your own proposal, and point out any remaining differences.

If your listeners don't agree, it is possible that they don't completely understand your idea. It may be worth while to point out how everyone's best interests would be served by your proposal. Show (if it's true) that the specific ideas are not yours alone, but concur with majority opinion or experience. Show that your ideas support company policy.

In the end, you'll have been direct and forthright. You'll have given your listeners a chance to

question your stand (a challenge you must meet with your answers). Because you have been reasonable, they will be inclined to accept your ideas.

Indirect presentation

Presenting the idea indirectly requires development through conversation. Your goal, essentially, is to lead the listener to a constructive conclusion.

Suggestion is often the strongest way to get an idea across. It gives the listener room for thought; it stimulates imagination.

When you've made the listener a partner in the idea by presenting it indirectly, the end result may be even better than your original idea.

To get a person to think with you, state the problem and try to get him to work out the solution with you. Instead of stating a dogmatic opinion, ask him questions that may help lead to a mutually acceptable decision.

Don't present an idea this way, though, unless you're willing to accept the employee's suggestions. If a proposal must be carried out your way, without any compromise, admit it from the start—and present the idea directly.

Meeting opposition

No matter how well developed your techniques of communication, if you have new and significant ideas to propose you will occasionally meet with opposition.

It's possible to discuss a matter without debating it and without offending people who don't agree with you. Some basic pointers: Don't make the issue any bigger than it is; don't threaten; don't accuse. Accept as much as you can of the point

SAY WHAT YOU MEAN

If you want to make sure that people understand what you're saying, say it clearly.

1. Don't use *equivocal words,* which have more than one meaning, unless you explain what you mean.
2. Don't use *relative words* (like *short* or *thick*), without explaining *how* short, *how* thick.
3. Keep away from *labels,* denoting general, indefinite groups. Instead, be specific; talk about individual people and things.
4. Don't use *abstract words,* like *truth* or *goodness,* without defining them. Be concrete.
5. Avoid *emotive or projective words* that express feelings and opinions when you're presenting straight facts.

of view of the opposing side.

You can usually find some truth (and some agreement) in the ideas of your opponent. Acknowledge the strong points and admit, if it's true, that many others agree with them. "Nevertheless," you might add, "many people oppose it—and for these reasons . . ."

Don't underestimate the possibility of misunderstanding. Go over your opponent's points one at a time and make sure you know what he means. If you find discrepancies between what he said and what he meant, you'll also find openings for reconsideration of the subject.

Above all, remain calm and soft spoken. Take time to let your listener deliberate and reconsider. It may be better to put off a decision than to impose it on unwilling subordinates. They have to put your decision into action; if they resent it, they can also keep it from being effective.

The art of persuasion

Communication often resolves itself into the gentle art of persuasion —the art of talking up, not down. In general, this requires that the speaker 1) know what he wants to say; 2) state it specifically and clearly; 3) emphasize positive arguments, omitting any that are personal or slanted; 4) provide the listener with the opportunity to reply and question. Finally, good communication often requires the speaker to minimize his emotional reactions so he does justice to the facts.

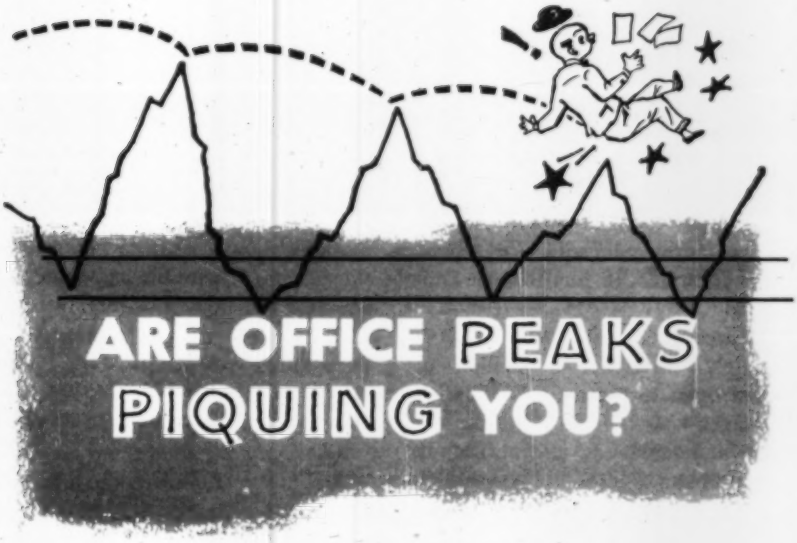
Actions are important. But words are, too. For the man who can communicate is in high demand in industry. ♦

How to Present an Idea Directly

1. State the problem.
2. Discuss what you hope to achieve by solving it.
3. Present your proposed solution.
4. Explain why you proposed this particular solution.
5. Summarize the over-all message in a nutshell.
6. Listen for questions or suggestions.
7. Accept any improvements.
8. Restate the proposal, including modifications.

THE FEDERAL GOVERNMENT owns over 769 million acres of land which is worth, with installations, almost $46 billion. The holdings are located in all the states and possessions, and in 108 foreign countries. In Alaska and Oregon, the government owns more than 60 per cent of the total acreage.

—*Challenge* 4/59



ARE OFFICE PEAKS PIQUING YOU?

By Raymond Dreyfack

Director of Tabulating Systems
Fabergé Perfumes

Have you considered all possible means of easing those office overloads?

A TABULATING SUPERVISOR in a wholesale liquor company made a study of the incidence of card-pulling errors during two separate months—November and May. His findings were dramatic. Comparing the number of errors to the volume of work, he found that the error ratio in November was more than double that of May. The reason: seasonal peak. The liquor business is hectic in November, relatively calm in May.

Supervisors are piqued by peaks in many ways, sometimes subtle and indirect, always nerve racking. Errors and inefficiency are just two of the ruinous results of the pressures of seasonal or periodic overloads. Expensive and fatigue-producing overtime is a third. People can't do their best work if they overdo the overtime—even when they've asked for extra work. What's more, extra, or too heavily pressured, working hours tend to shorten tempers and exaggerate personality foibles.

What can the supervisor do to avoid peak situations or cut them down to a minimum? By the very

nature of most businesses, the flow of paper or of production cannot be externally regulated for the convenience of the supervisor. He has no control over the fact that thousands more cases of liquor are ordered in November than in May, or that many more swimsuits are moved across counters in July than in February.

Where, then, is the answer? Fortunately, there are a number of doors open to the actively thinking manager who is willing to take the time and make the effort to study the problem.

Analyze the symptoms

When a person complains of a physical disorder, the sensible thing for him to do is go to a doctor for an examination. Company disorders should follow pretty much the same procedure. In this case, the patient, be it office or plant, should be subjected to a thorough diagnosis to find the cause of the trouble and the most practical means of relief.

In most instances, when the symptoms—overtime, errors, fatigue—start pointing to an acute case of peakitis, the cause is obvious and unavoidable. Heavy report scheduling at the beginning of the month, for example. Or an exceptionally large seasonal influx of orders.

Once we have defined our ailment and determined its cause, we have the basis for planning some improvement. Let's get right down to the heart of the matter. Our normal flow of business, let us say, is 300 orders a day. During our peak, however, we receive 700 or 800 to process daily. What can be done about this? Maybe little or nothing; perhaps a great deal. Maybe we can offer some kind of inducement to customers to send in orders early. Perhaps the sales department can stagger its promotion campaign to equalize the flow. Possibly we can revise our reporting schedule to reduce other workloads during the heavy order period. It depends, of course, on the specific operation.

Review systems

When a peak situation exists, *all functions* performed during this time should be carefully analyzed in detail. Is every job absolutely necessary? Can Project X, for example, wait until after the peak has subsided? Or, even better, can it be started before peak time?

Habit is another strong factor. For years Sally Smith has been coming in to work in the morning and sitting down at her desk to post the previous day's figures in her ledger. Maybe these figures won't be looked at again until the end of the month. It might be a good idea to have Sally hold off her posting during the peak period and use her time to pitch in on the orders.

When you review systems, you've got to consider all aspects of the operation.* *Why* is one of the most revealing words in the English lan-

* See *It's the Way That You Do It*, by Raymond Dreyfack, in SM, October, 1958.

guage. Each step of each procedure should be challenged with this word. Why is Jane Watkins filing debit slips without a mechanical filing aid? Why is she filing them at all? Do they have to be filed? How often is reference made to the files? Could such reference be made elsewhere?

Keep questioning

Take nothing for granted. Ask yourself if your procedures are up to date, in order, and reasonably simplified. An employee struggling over an involved procedure will lose time, make errors, increase the possibility of peak situations. What about people? Is the right person in the right job? Willie Jones takes two hours a day to post the accounts. But how is Willie's clerical aptitude? Maybe someone else could do the job faster and more accurately. Tests for clerical aptitude, arithmetic, vocabulary, dexterity, and other skills are available for business use. Though rarely conclusive in themselves, they are often useful, especially combined with your own observation of performance.

How about the physical layout of the department? Are steps wasted (creating time loss and confusion), because the arrangement of work stations is inconsistent with the flow of the work? In many instances, the original layout of the department is fine, but as time goes by changes are made, so that the logical work flow is distorted. Work layout, unless reviewed periodically, can be responsible for producing peaks.

Also, let's not forget that old bugaboo, work scheduling. Are schedules properly established and adhered to? When work is scarce, people tend to slow down. A small backlog is generally healthy, an automatic incentive for people to pitch in and get the job done. Whenever possible, a supervisor should regulate the flow of work to keep production moving briskly.

Forms review

Forms can be either tools or tyrants. In 1957, the New Mexico Public Service Company found itself saddled with a steadily mounting peak situation in billing. A study revealed that by making a relatively simple change, the company could switch from an individually cut, hand-fed bill to a marginally punched, continuous form. This simple change cut in half the time required for billing.

As further evidence, the Youngs-

Is This Form Necessary?

When peaks get in the way, take a close look at your paperwork. Ask these questions—and others—about your forms:

- Could you use fewer, more efficient forms?
- Could you use them differently?
- Are they being used by the people they're sent to?

town Sheet and Tube Company has reported that in combining the writing of a receiving report with a purchase order it was able to do away with the preparation of approximately 60,000 documents per year. Common information appearing on both pieces of paper was simply rearranged to produce a single, all-purpose form.

A comprehensive study of your forms situation can pay off handsomely in preventing or reducing peak loads. Are all reports *used* by the people who receive them? Can a single report serve more than one department? Can two or more forms be combined into one? Can a form be simplified to avoid delays? Is the form arranged and identified to speed and simplify filing and distribution? Have you considered all possible time-saving forms?

If a set procedure is to be followed on a form, can these instructions be printed on the form itself? How much time is spent to correct errors on invoices and other forms? Would it be more economical to rewrite the document than try to correct it? Can written information be abbreviated, or can writing and reading time be reduced by means of codes? Is time lost, or are errors made as a result of poor carbon registration? Can invoices be made larger to reduce overflow pages, which add stripping and handling time to the operation?

There are many points to consider when you appraise the forms situation. It is often a good idea to prepare a check list of the items to be reviewed, applying the list to each form individually. You will find that time spent in such a project can do a lot to reduce your peak problem. And you can get assistance—free. Most leading forms suppliers are more than happy to send their experts around to discuss your problems with you.

REVIEW YOUR SYSTEMS

An essential step in eliminating peaks is to review your present system. Ask yourself these key questions, for example:

- Are all operations necessary during the peak period?
- Could the work be done in a different way or in a different place?
- Are the right people in the right jobs?
- Is the physical layout conducive to a smooth work flow?
- Are your schedules being followed—and are they realistic?

Service bureaus

Now—our systems and our forms are reviewed. We cut a few corners here and there, helped reduce the workload, combined two or three reports into one. We're better off than before, but let's face it—in spite of everything, we're still not out of the soup.

Okay, cheer up. We have other

resources. Just because these peaks are plaguing us, a peculiar type of business has evolved, and is flourishing today. This business is the service bureau. (The plant counterpart of this would be our old friend, the contractor.)

First, of course, the supervisor should try every device at his command to solve his overload problems within the company. But this can't always be done economically. Obviously, it doesn't make sense to employ a large crew all year round just to be completely covered one week during the month, or a month or two during the year. The test is to compare the costs of the errors, morale loss, and premium wages for overtime with the expense of farming some of the work out.

Service bureaus often have large around-the-clock staffs at your disposal. They'll do typing, filing, computing, card pulling, key punching, correspondence, billing, payroll—anything. In your office or theirs.

Some service bureaus specialize in mailing and addressing; others just supply temporary help; some specialize in particular office operations like payroll or billing. Many cover virtually all kinds of clerical or business processing.

Before you farm it out . . .

Before you turn over a substantial job to a service bureau, it's advisable to ask for bids. Then, after discussing your problem in detail with various service-bureau representatives (who are usually experienced systems people), you can review the proposals of each company from a cost and a production standpoint. You can then compare the best offer with what your own internal costs would be.

Bear in mind that it's sometimes advisable to farm out only a portion of the work.

Make sure that the facilities of the service bureau are adequate to fill your requirements. Some bureaus have been known to make promises they couldn't keep. Others may do a job in a roundabout way —which can be expensive for you— because they lack either proper equipment or sufficiently skilled personnel.

But if you find the *right* agency, through recommendations and careful investigation, you may have an answer to your peak problem.

Extra shifts

Not so long ago, the Passaic-Clifton National Bank was suffering from a daily peak situation caused by increasingly complex operations in a rapidly expanding company. Management analyzed the situation. The answer they came up with was surprisingly simple. A large volume of paperwork that was producing the peak during the day was taken lock, stock, and barrel, and switched to a second shift. The result was singularly successful. Pressures were relieved, exacting schedules re-established.

GOT A "PEAK PROBLEM"?
HAVE YOU CONSIDERED:

1. Streamlining systems, work flow, physical layout?
2. Using more efficient forms—or getting more out of existing ones?
3. Farming out all or part of a job to service bureaus or contractors?
4. Putting on extra shifts during peak periods?
5. Using slack periods to do some of the peak-period work?
6. Automatic processing?

There is no rule that says work can't be done as efficiently by night as by day. Oddly enough, some people prefer working evenings. Transportation is easier; traffic is no problem; telephones ring less frequently. The atmosphere is often more peaceful and relaxed. For many firms, a second or third shift has proved the ideal medicine for peakitis.

Using the "valleys"

Another way to reduce peak loads is to use slack periods to do summaries or subtotals. A report is due, let's say, on the fifth day of the month. This comes at the very height of a peak. Let's assume that the report in question is a manual job, in which figures are posted from a binder of invoices accumulated during the month.

Now, let's investigate further. Invoices are produced every day. But when did Amy Witherspoon begin posting? Could part of it have been done during the slack period three weeks earlier? Could subtotals have been added in advance? Or was everything left for the last minute, adding just that much work right at the peak?

Maybe Amy *started* the job three weeks before, but since it was not urgent at that time, she kept putting it off, so that only an insignificant bite was made into the over-all project. Or maybe she needed some assistance. Someone else in the department? Or possibly someone from another department? These are additional devices which can help iron out the peaks.

Automated processing

Recently the management of a relatively small laundry operation was surprised to learn that its entire billing, payroll, and labor analysis could be competently handled by punched-card machines. The company had always thought this kind of equipment was strictly for larger companies.

Before the machines were installed, a constantly harrassed staff strove desperately to meet the demands of frequently recurring peak situations. Reports were late, billing

undependable; on more than one occasion, the payroll was not met in time. With automated equipment, the office of this firm now runs peacefully and serenely.

Many—though not all—peak problems can be solved by one or another type of automated office equipment. In most cases, the purpose is not to eliminate people, but to make processing faster, smoother, and more efficient. Often the savings from eliminating the peak will more than pay for the cost of installation.

On the other hand, it's all too easy to go overboard on such equipment. While, for the most part, the proposals and commitments made by machine manufacturers are reliable, it is still wise to investigate the details thoroughly before you recommend expensive purchases or lease arrangements. Careful cost comparisons should be made between the automated system, the system currently in operation, and any alternate systems presented. In many cases, a detailed study must be made of the advisability of a lease basis compared to outright purchase. The cost and availability of servicing, the personnel situation, and available training facilities must also be considered.

All this is simply another phase of systems study. We want to reduce or eliminate that peak, but we want to do it in a way that will show up favorably on the profit-and-loss statement. When you consider automated office equipment, remember that it lends itself most readily to operations that can be routinized. Another important factor is volume. The greater the number of transactions to be processed, the greater the possibility of a solution via automated equipment.

More than one way

As the old sage once said, there is more than one way to skin a cat. Cures for peakitis do exist. If a cure won't apply to your situation, at least look for relief. The benefits of peakitis medication are many: happier and more efficient employees; a smoother, more streamlined operation; and, of prime importance to the supervisor—a more relaxed, less ulcer-prone existence. ◆

Put Another Nickel In . . .

VENDING MACHINES have clicked away at a faster and faster pace since the end of World War II. Sales through the 3.7 million vending machines now in the U.S. achieved a record high of $2.1 billion last year. In 1946, vending-machine sales were $600 million. These figures emerged from the 13th annual industry census conducted recently by *Vend* magazine. Cigarettes account for the largest dollar volume among products sold through machines, the survey showed. Last year, smokers bought some $821 million worth of cigarettes from machines, or 15 per cent of all smokes sold.

—*Business Week*

HUMAN RELATIONS

PUTTING THE *THEORIES* INTO *PRACTICE*

By John Casey

General Training Supervisor

Training programs give you the principles, but can you apply them on the job?

A CAPABLE MANAGER will learn all he can about his job, and will work to keep his knowledge and skills up to date. To sharpen his management skills, he often takes part in training programs which give him instruction in the most important area of his work: getting results through the efforts of other people.

But mere participation in the best-planned training program isn't enough. What counts is what the manager does with his training when he gets back on the job. The instructor is no longer around to advise him—this all-important application is up to him. Many a manager performs brilliantly in the classroom, yet fails in applying his new knowledge and skills on the job.

Too often in training, there is a failure to explore the problems a manager may encounter in applying, under job conditions, the human-relations principles he has learned. Here are some pointers that

may help managers get more value from their training.

A matter of habit

The manager must realize that his present methods of dealing with people have been acquired over the years; they may have become deep-rooted habits.

He may have acquired the habit of getting things done by constantly pulling rank—or by giving detailed instructions, not only on what to do, but on how to do it. He may have acquired the habit of constantly questioning his subordinates about every suggestion and every action. When he tries to adopt a new approach or apply new skills, he finds that it isn't easy. He may become disillusioned with the new approach or the new skills themselves—instead of recognizing that the real problem is his own difficulty in changing his habits.

A manager should recognize his habits for what they are, and he should learn to recognize his difficulty in changing them. He should understand that he can change his habits only when he is convinced that it is worth his while. What is more, he should realize that a change in his habits may disconcert his associates at first, and that it takes time for some changes to be acceptable and productive.

Know the limits

The manager must see that his knowledge or the specific human-relations skills he has learned have limitations in certain situations.

He must see the limitations of his own ability to use a skill. For example, there is a limit to how far a manager can go to satisfy the motives of an employee. His motives may be unrealistic. If so, the manager's job would be to develop in the employee greater maturity and a more realistic viewpoint.

In encouraging employee participation in decision making, again the manager should not try to "cover the waterfront." Participation loses meaning if it's spread too thin—if it's made to cover areas in which the employees have no real interest or responsibility.

A manager must recognize the scope or limitations of his interviewing and counseling skills. If he is too preoccupied with his method, he may forget that his first responsibility is to get things done. There is a definite place for forthright, clear expression that leaves no doubt about what the manager wants and means.

Motivation—not manipulation

The manager must use his knowledge and skill to motivate people—not to manipulate them.

He must be able to see the difference between motivating and manipulating people. Motivation demands sincere, straightforward dealing. Manipulation implies trickery. People resent being tricked and, except in rare cases, they recognize the tricking process. When knowl-

edge or skills are used to manipulate people, they sooner or later become useless. Unfortunately, the manipulator often doesn't realize that there's anything wrong with his approach.

What's their attitude?

The manager must see that his success in applying human-relations knowledge and skills depends on people's attitudes toward him.

Their attitudes toward him have developed largely from their views of his actions and his character. If subordinates feel that the manager's actions reflect immaturity, irresponsibility, disloyalty, fear, or frustration, his most skillful efforts to motivate them to be mature, responsible, loyal, and self-assured will be fruitless. If subordinates take a dim view of a manager's sincerity, courage, truthfulness, or integrity, his most skillful efforts to promote these qualities in them will be fruitless. Because he is in a position of authority, subordinates constantly evaluate his actions and character. The manager may not fully appreciate this; he may not realize how clearly he is seen by his subordinates—nor how his actions look to them.

Knowledge of behavior and of dealing with people, then—even coupled with the technical skills to apply that knowledge—is not enough. The manager must use his knowledge and skills prudently and with integrity. His actions and character must prove his prudence and integrity to the people he deals with, and must earn their respect.

It takes integrity

As Peter F. Drucker has said, "Intellectual and conceptual education alone will not enable the manager to accomplish the tasks of tomorrow. The more successfully tomorrow's manager does his work, the greater will be the integrity required of him. . . . The new tasks demand that the manager . . . lead not only through knowledge, competence, and skill, but through vision, courage, responsibility, and integrity."

"The men with whom a man works . . . may forgive incompetence, ignorance, insecurity, or bad manners. But they will not forgive him for lack of integrity. Nor will they forgive higher management for choosing him."

Drucker continues:

"Integrity is difficult to define, but lack of integrity is not. People like these, for example, lack integrity:

"The man whose vision focuses on people's weaknesses rather than on their strengths.

"The man who knows what people cannot do but never sees what they can do.

"The man who considers intelligence more important than integrity.

"The man who is afraid of strong subordinates."

Prudence for action

Prudence is the ability to discern the most suitable course of action. St. Thomas Aquinas states that wisdom, knowledge, and understanding are valueless in themselves unless they result in reasonably responsible, self-reliant action. But, he explains, action cannot be reasonably responsible and self-reliant unless it is activated by prudence supplemented by fortitude, temperance, and justice. Prudence, in this sense, is an understanding of the immediate steps it takes to reach a goal; fortitude is needed to persevere in spite of discouragement; temperance is required for self-discipline; and justice demands that the rights of others be recognized.

Prudence is not necessarily caution or hesitancy in action. Prudence is the ability to—

—inquire into the best means to reach a goal,

—choose the means, and

—act on the means.

The key to prudence is objectivity. Anything that interferes with objectivity—bias, prejudice, fear, overanxiety, expediency, and, above all, lack of integrity—makes prudent action difficult.

Encouraging prudence and integrity

How can a manager encourage, in his subordinates and in himself, prudence and integrity in applying acquired knowledge and skills?

Prudence and integrity cannot be taught in the same manner as knowledge and skills. But they can be acquired, if people are encouraged by:

1. *The spirit of an organization.*
2. *Individual counseling* to develop a sense of responsibility.
3. *Supervisory and training procedures* that develop a better sense of self-awareness.

The spirit of an organization is reflected in the day-to-day practices that bear out management's demand for high standards of conduct, acceptance of responsibility, good performance, and respect for the individual and his work. Every manager can reflect this spirit, by setting an example of integrity and prudence, and by rewarding them in others.

How to Get More From Human-Relations Training

1. Recognize your habits and realize that it isn't easy to change them.
2. Know the limits of specific skills or knowledge in certain situations.
3. Use knowledge and skills to motivate—not manipulate.
4. Realize that success in human relations depends on people's attitudes toward you.
5. Apply what you have learned with prudence and integrity.

A sense of responsibility encourages and often forces a person to evaluate more carefully what he contributes to a problem and how he can solve it. Any counseling may help, but capable counseling by the supervisor is the most effective.

The more genuine self-awareness a man develops, the greater will be his problem-solving potential, since he will be less likely to excuse his own weaknesses. A supervisor who sets up a subordinate's job as a job with its own objectives and its own performance standards—and who then gives the man full responsibility for the job—helps, and often forces, self-awareness. When training includes a high degree of personal involvement, it, too, stimulates self-awareness.

It's up to management

The good that comes from training in human-relations skills is proportional to the integrity and prudence with which these skills are applied.

But integrity and prudence cannot be forced; they must be encouraged. It's up to management to provide this encouragement. ♦

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LET'S GET DOWN TO CASES

Every month, SM presents true stories of tough situations supervisors have faced. The core of each story is an unsolved problem.

How would you handle it? Your answer and the steps you take in arriving at it can be of the utmost value to you.

If you consider the cases by yourself, it might be worth while to jot down your questions, your reasoning, your decisions.

Or, discuss one or more cases with a group of people—fellow supervisors, family, or friends. You'll find that each person has his own way of looking at the problem.

Between the Devil and the Deep

ANDY PAULSEN'S troubles began the day they fired Bill Carney and Andy was asked to supervise Bill's work group as well as his own.

Objectively speaking, the change in supervision made sense. It united two groups—computer programmers, formerly headed by Bill, and computer operators, Andy's unit. The two operations naturally went together and, under normal conditions, the change might have been readily accepted—for Andy was well equipped by his technical background to direct the combined operation. But the circumstances were far from normal.

To Bill's former subordinates, the reasons for his discharge were a mystery. All they knew was that their boss, whom they liked very much, had suddenly been fired. In strict confidence, Andy had been told the facts—that Carney had been discharged for theft. Clearly management had done the only thing it could under the circum-

stances. But the programers—all eight of them—seemed to resent Andy and distrust him. And there was little doubt in his mind that they regarded Carney as some kind of martyr.

The group appeared compliant enough about getting the work out, but they never volunteered a suggestion or even a comment when assignments were given to them. Twice during their first two weeks in the department, Andy saw them go out to lunch in a body—to discuss the situation, he assumed. People naturally set up barriers against any change, he reminded himself. But he couldn't help feeling that the real barrier was their own sullen attitude and the united front they put up against him.

Andy felt strained and awkward in dealing with them and so, more and more, he turned over the supervision of their work to his assistant, Bob Nash.

Bob certainly was no technical genius, but he was self-assured with people and, Andy admitted, a bit more aggressive and thick skinned than he—so maybe this was as good a way as any to get through the transition period. Bob, for his part, obviously welcomed the opportunity to spread his wings and, for the first time, take a direct part in supervision.

As the weeks passed, Bob became increasingly involved in the work of the eight programers. He spoke of getting up a plan to redistribute their workload, and he had a lot of ideas on the fire about ways to improve their productivity. He seemed to buzz around them a good deal.

In spite of himself, Andy felt

a certain sense of satisfaction that the group didn't seem to warm up to Bob any more than they had to him. Obviously, they were tough nuts to crack.

About seven weeks after the new unit had joined the department, Andy got a jolt. He overheard one programer remark to another: ". . . but, of course, we don't even know who our boss *is*."

"What's the difference?" came the cynical reply. "We're between the devil and the deep. One's always meddling and the other doesn't seem to know what it's all about."

Consider these questions—and ask your own:

1. If you were Andy, what would you do now? (Consider the pros and cons of each action.)

   ____ Break in on the conversation and ask the people you overheard why they felt this way?

   ____ Have a show-down meeting with the group?

   ____ Remove Bob from contact with the group and take over yourself?

   ____ Start showing more interest in the work of the group? (If so, how?)

   _____

   _____

   ____ Tell the group why their former supervisor was discharged?

   ____ Or what? _____

   _____

2. What factors—besides the mystery of Bill's firing—may have caused the computer programers to resent the change in supervision? _____

   _____

3. If you had been Andy's and Bill's boss in a situation of this kind, how would you have gone about making the change?

   _____

   _____

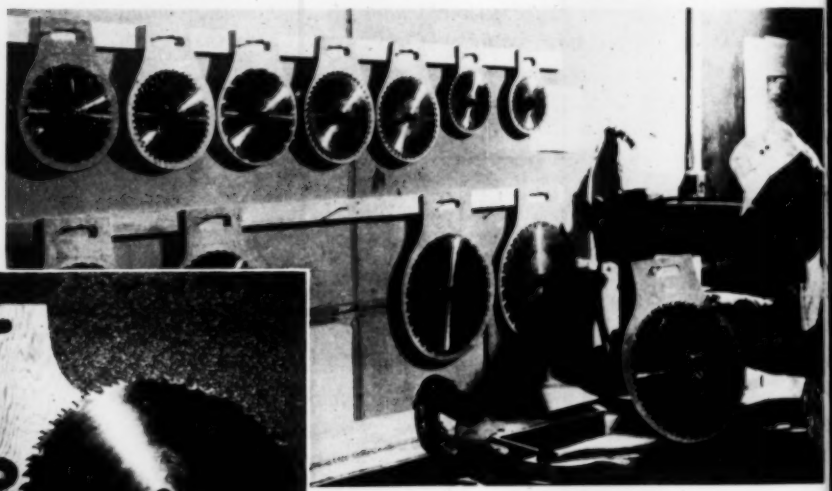
How Would You Solve This Case?

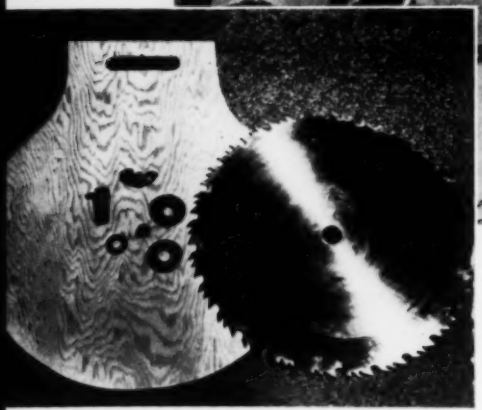
If you've discussed this case at the plant or at home, or if you've done some thinking about it—what did you come up with? We'd like to know your ideas and comments. Send them to Let's Get Down to Cases, Supervisory Management, 1515 Broadway, New York 36, N. Y.

EMPLOYEE INVENTIONS SCORE FOR SAFETY

HOW EFFECTIVELY employees can promote safety is demonstrated by the safety gadgets shown here, from a recent exhibit by the National Safety Council. All were invented and constructed by employees. All have been used in plants and found effective. All can be made simply and inexpensively from readily available materials.

Supervisors may use these ideas directly, or they may use them to encourage inventions in their own work groups.





This saw-blade carrier is made of ¼-inch plywood cut to size, plus a bolt, wing nut, and washers. It preserves the sharp edges, minimizes the danger of cuts, and facilitates carrying.

To eliminate hand injuries:

Right: A circular metal guard, welded in front of a hand truck's handle grips, protects a worker pushing the truck.

Lower left: A cellulose sponge, drawn over the handle of a chisel, protects the workman's hands.

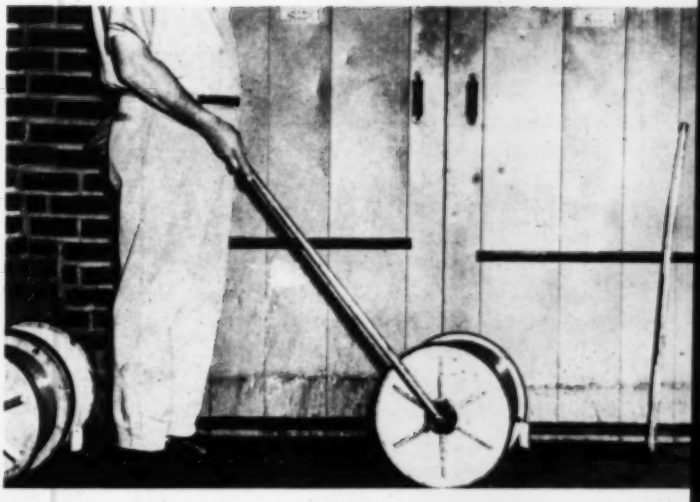
Lower right: Paper cutters rarely have guards. A metal bar placed so paper can be fed under it protects the fingers from the sharp blade.

Luminous adhesive identifies a gas-shutoff valve and an exit. Even if lighting fails—as it often does in emergencies—employees can find emergency equipment and exit door.

To control use of a valve that can't be locked, cover it with a can held by a chain that *can* be locked.

To keep ax or sledge heads from flying, chain the head to the shaft.

To move spools of wire, weld a short pipe to a longer handle, then roll spool. This device helps to control heavy objects and prevents lifting strain. Can be adapted for other unwieldy cylinders.



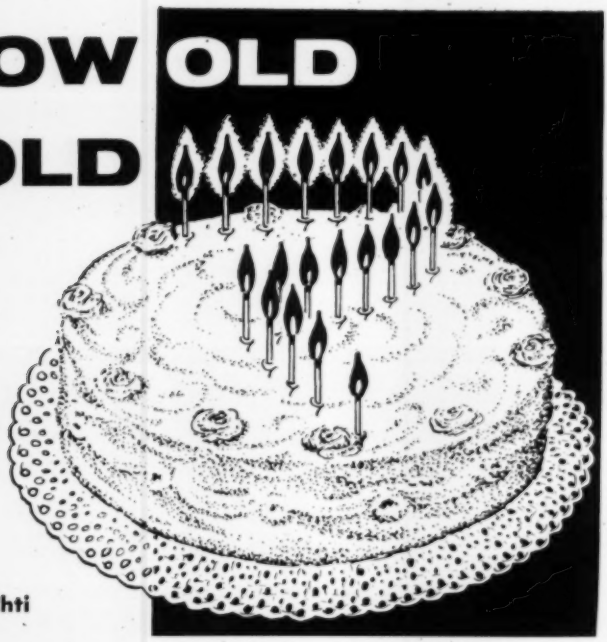
Mount a warning sign waist high in doorway. Double hinges allow two-way traffic, and springs return sign to position.

Wrap heat lamps in heavy screening to catch falling bulbs, contain explosions.

SEND US YOUR IDEAS

Are you using any safety devices that you or your work group have developed? Or do you have any ideas for new ones? Send your suggestions for future publication in SM (with photographs, if possible), to **Supervisory Management**, 1515 Broadway, New York 36, N. Y.

HOW OLD IS OLD



By William Ruchti

You can't predict job performance on the basis of a worker's age.

A LITTLE GIRL was asking questions of her grandfather.

"How old is old?" she wanted to know.

"That depends," the grandfather answered, "on how old you feel."

The girl thought that over for a moment, then continued: "Well, if people have growing pains," she said, "do they have growing-*old* pains?"

"They needn't," the grandfather replied. "They shouldn't."

"Grandpa," the child interrogated, "are *you* old?"

"No," he said, "I'm only 70."

What is age?

When aging people are asked how old they feel, they often reply, "young." Age is relative, and its symptoms vary from person to person. A worker in his 50's or 60's may feel young and purposeful; he may be operating at his peak. On the other hand, we all know people

who, though actually young, seem elderly. "Without incentive a person might be 'old' at 35; with it, he might be 'young' at 70," according to the American Medical Association.

Furthermore, age is a continuing process that is happening to all of us all the time. Yet, until the recent development of a science of the aging process—gerontology—our society had done little to help older people meet their problems. Perhaps, like the child in the story, we, too, should ask questions.

The need for veteran workers

What does all this have to do with the supervisor? Just this: Most supervisors already have older people among their subordinates or may be senior employees themselves. And there will be still more older workers in the national labor force as time passes:

1. Population increases have given us 50.2 million (out of 171.4 million) people who are 45 or over.

2. Increases in longevity mean that more and more people are *reaching* old age—nearly 3,000 a day become 65.

3. Simultaneously, relative decreases in the ranks of younger workers caused by the lower birth rate in the depression have emphasized the increase in our older population. Since 1900, the number of people under 45 has almost doubled, but those 45 to 64 have tripled, and those over 65 have quadrupled!

4. Finally, the Department of Labor predicts that by 1970, some 16 million *additional* workers will be needed to meet normal production. Since that number can't be filled by young people already working and since there will be fewer young people coming into the workforce, more older people will have to be employed—and employed longer.

Yet, right now, workers over 44 make up 40 per cent of all job applicants, but get only 22 per cent of the jobs.

The aging process

It is difficult for aging people to accept age and its restrictions. The older worker must readjust to life as he grows older. Even if he doesn't need help, he requires understanding.

Let's consider, then, what aging, a slowing-down process, involves:

There is no specific time at which old age sets in; a person may work competently through his seventies. Consider a roster of notable contemporaries who have scored enormously in their later years: mathematician Albert Einstein, statesman Winston Churchill, playwright George Bernard Shaw, philosopher John Dewey, architect Frank Lloyd Wright. President Dwight D. Eisenhower, when he was 45, confided to a friend that

he hoped he could become a full colonel before he retired. Benjamin Duggar of the University of Wisconsin was forced to retire at 71, discovered Aureomycin at 74.

Yet slowing down eventually occurs. Most people experience it first with failing eyesight, hearing, muscular strength, and endurance.

Nevertheless, physical aging need not affect work ability. An extensive analysis of 4,000 typical jobs, conducted by the U.S. Employment Service, indicated that only 14 per cent of the jobs require great strength and lifting ability.

Nor need age affect work capacity. In a University of Illinois study (see box below), supervisors said that well over half of workers 75 and over were turning out at least as much work as they always had—and sometimes more. And over half the workers showed promise of "an indefinite number of years' service" in the future, their supervisors said.

Where they shine

In addition, many surveys indicate that older workers offer these specific advantages: (For more details, see *Seven Myths About the Older Worker*, SUPERVISORY MANAGEMENT, January, 1957.)

► They are more cautious and therefore less accident prone.

► Whether from fear of losing their jobs or from an increase in their understanding, older workers are usually easier to get along with than younger employees.

► Although their illnesses tend to be more severe and to last longer, older workers are out for illness less often and therefore have better over-all absenteeism records than their juniors do.

► If an older worker's produc-

DOES AGE AFFECT OUTPUT?

Here's how supervisors rated more than 1,000 office and managerial workers over 60 when, in a University of Illinois survey, they were asked to compare the present productivity of older workers with their past work volume:

	Present Work Volume As Compared with Past		
Worker's Age	*Higher*	*Same*	*Lower*
60-64	22%	58%	20%
65-69	19	55	26
70-74	27	50	23
75 and over	13	45	42

tivity slackens—and often it doesn't —he normally turns out higher-quality work that is more conscientiously finished, and with less wastage than that of younger workers.

► Senior workers, as a group, tend to have sounder judgment and greater maturity than junior workers have.

► Finally, older workers have low turnover and usually are extremely loyal to their employer.

The other side of the coin

"All right," one may say, "that isn't the full story. There must be some drawbacks."

Older workers as a group do have two handicaps: 1) They tend to adjust to change more slowly, therefore may be harder to train. But even this has compensations: While it may take longer to teach or change older people, they retain—and follow—the lesson much better once they've learned it. 2) Some old people slacken in motor and intellectual capacities. Yet this varies considerably from individual to individual. (In one test of reaching and grasping, reported to the National Academy of Science, a third of the men over 70 were able to match the average performance of boys of 14.)

Again, there are compensations for slowing down: As elderly workers slow down, they usually compensate loss of speed with increased care and improved work quality. In the long run, even a slow older worker could be more efficient than a speedy, but careless, younger man.

The disadvantages on the older worker's record are thus counterbalanced—in fact, outbalanced, some say—by positive factors. A recent survey of 163 manufacturing companies concluded: "The vintage values of workers over 50 *far exceed* the drawbacks of physical deterioration."

Work is important

Supervisors who want to employ older workers successfully must accept this fact: Older people *want* to work. Work is important to them.

For most, work is more than a source of income, though income is certainly important: The aging make up one of the largest single low-income groups. Half the families living on less than $40 a week are headed by people over 65.

A job-centered employee—especially the male who serves as sole wage earner—sees his work as the foundation of self-respect and the source of prestige, within his family and his community. Work also provides him with membership in a group—participation in the social structure. It may also give him the chance to be creative. In many cases, it gives the older person an opportunity to be of service to others —to prove he's worth his salt.

Finally, work fills what otherwise might be empty time. It imposes schedule and order on the person's life. Being employed builds self-

esteem and discourages self-preoccupation.

It's little wonder that the American Medical Association's Committee on Aging reports that the two major elements in prolonging life are: 1) the preservation of energy —through balanced diet, physical rest, and avoiding excessive emotional strain; and 2) *a high degree of motivation*—through "purposeful activity," especially work. "When the incentive—the zest for living—is lost, senility is inevitable."

For older people to whom work is important, then, the sudden ending of employment may be a cruel severance from all meaningful contacts. This helps to explain the people who suddenly deteriorate when they retire to total idleness.

How test the employability of older workers who say they're able —and who want—to continue to work? Supervisors must use their judgment, for there's no specific test. A general rule of thumb is: Keep them on as long as they perform their jobs adequately without endangering themselves, fellow employees, or company property.

Need for supervision

But just retaining older workers isn't enough. They must be made to feel welcome, needed, and useful, according to a recent National Conference on Adult Education. Clearly, these needs aren't different from the needs of all employees. Supervising older workers correctly, then, means providing generally good supervision.

But some specific factors may help:

- Be sure to consider the particular needs of each worker.
- Don't, for lack of proper identification of an issue, slough it off as "because of old age." Employees have specific problems, and the supervisor cannot solve them until he identifies them—accurately!
- Pay greater attention to performance, which is a practical index of competence, than to age, which may be irrelevant.
- Because veteran workers represent an investment in supervision and training and because they already know company policies and the work situation, it's cheaper to retrain them for new jobs than to lay them off and start over with younger workers.
- If your older workers learn slowly, try to compensate for it—and speed up their learning—by improving *your* training methods: Be more thorough, more intensive, more specific.
- If you're making a change that involves older workers, don't

> *If you have a facility and use it, chances are you'll keep it; but if you fail to use it, chances are you'll lose it.*
>
> —Dr. C. L. Thorndike, Columbia University

wait until the last moment to announce it. Publicize and explain it well in advance so that they have time to adjust.

Planning for change

- In making a change, allow both older and younger employees to understand the change first, *then* adopt it. Don't reverse the order so that you first impose the change, then explain it later, if at all.
- Since some workers (young as well as old) become set in their ways, don't expect to eradicate *all* resistance to innovation or change. Be realistic.
- Since the attitude of older workers toward change may depend largely on the extent that they've been exposed to changes, make your organization elastic and progressive —"change-minded." Workers in a rut soon develop fixed attitudes, at any age. And you may have to scrap some of your own ideas!

Counseling and placement

- In counseling, give special attention to your timing. However good your advice, the *way* you give it may determine acceptance—or rejection.
- Don't merely make counseling available—those who need it most usually don't seek it. Instead, make a point of counseling, when necessary, on a continuous basis. Don't expect a one-shot conversation to provide the solution for a complicated issue.
- The insecurity of slowing down and occasional doubts about his effectiveness may make the average older worker unsure of himself from time to time. Take pains to show your appreciation when it is deserved.
- In placing older workers, remember that they do better in sustained performance than in accelerated, high-quantity work and that they're likely to prefer small to large work groups. But this doesn't mean isolating them. With less energy to waste, they often develop efficiencies and short cuts that can be applied to everyone.

Joining the group

- Just as the supervisor shouldn't pamper young and inexperienced employees, he needn't coddle the older ones. Being too solicitous about any age group tends to weaken that group by making it overdependent; and it may antagonize others. The older employee must be encouraged to fit into the work group.
- Once they are oriented, mature workers are less likely to be distracted by outside influences. As a result, they require less supervision. One employer has an older worker in every work team to provide what he calls "unconscious supervision" —the impact of the maturer worker's personality.
- Older employees, usually aware of their need to work, frequently boost over-all morale.

Time may tell

The time may come when the worker's age seems to show in his work. What then?

When incapacity becomes evident (usually from production results), the employee should be interviewed, preferably by the line supervisor (rather than a professional interviewer), who should encourage the older worker to speak frankly. To identify the problem, let him talk it out. He may need only encouragement and support.

He may, however, require medical attention. If so, refer him to the plant doctor or nurse, if available, or his personal physician. It's vital to discover signs of a slowdown early; preventive treatment may stall, if not halt, further deterioration.

A spokesman for the University of Michigan's Institute for Human Adjustment reports: "We no longer accept 'second childhood' or senility as inevitable or irreversible. There is far too much clinical evidence to the contrary."

In fact, an American Medical Association seminar on mental health indicates that "good medical treatment can get 25 per cent of patients over 65 back into the community and as high as 70 per cent of the depressions of old age sufficiently relieved so that the aging can resume normal living."

For the worker who is slowing down, the supervisor should re-examine the person's job and work load so that his maximum, unique skills may be used. The employee may need real help, and his supervisor may have to make some changes.

Job shifts

The supervisor may, for example, transfer the worker to another job. The transfer procedure may be formal or informal, depending on policy. Companies with union contracts often spell out transfer provisions in the labor agreement. Usually salary changes, if any, are also determined by policy.

Workers may be shifted *to the same job, but off the production line.* In a shirt factory where women workers in six units must meet the group pace, an older and slower worker is removed from her unit and allowed to work at her own pace. She is not downgraded, but does her own job without pressure.

Workers may be transferred *to jobs of equal status:* An outside salesman for a meat company, no longer able to drive a car, was transferred to an inside desk job.

They may be transferred *to simpler or less demanding jobs:* A driller in an underground mine was unable to climb ladders or perform heavy work. He was reassigned to put blasting caps on fuses and to cut fuse lengths for various drilling needs.

The supervisor may transfer or promote them to jobs that *entail greater responsibility, sound judg-*

ment, and maturity—but are physically less taxing. Many organizations keep their oldest employees on the payroll, fruitfully occupied, by assigning them to instruct and train new employees.

Or, workers may be shifted to *custom or quality work*.

Time changes

Another way of easing the work load is to make changes in working hours.

The employee may, for instance, switch *to a more desirable shift*. A Michigan steel producer posts jobs that are open; and older workers, who are likely also to have relatively high seniority, apply for the job they can handle.

The supervisor may *transfer employees to part-time work*. An elderly switchboard operator now works only three days a week, instead of five.

Rearranging systems

If the job or the hours can't be changed, work content may be. This may take the form of *mechanizing or re-engineering* the job.

A metal-tubing company in Pennsylvania has mechanized extensively by introducing cranes and other labor-saving equipment. This allows them to retain many employees over 45—and to sidestep a local shortage of young laborers.

Some companies have created special sections or departments for older workers where pace is secondary to accuracy or quality. One automobile manufacturer set up a light-assembly department where each man is permitted to work at his own pace, for as many hours as he agrees to, on flexible schedules, with low-power machinery, and on a common hourly scale. Rejections of department output have been only 1 per cent, as compared with 3 per cent in departments where speed and quantity are stressed.

Sometimes the solution requires only a little ingenuity: A food-packing plant found that older women workers were slow in picking up, filling, and replacing cartons of

RETIREMENT GOALS

These goals of retirement have been stated by Dr. Leo W. Simmons of Yale University:

- To live as long as possible.
- To get more rest, or release from humdrum tasks.
- To remain active participants in group affairs.
- To safeguard or strengthen any prerogatives acquired, such as skills, possessions, rights, authority, and prestige.

processed beans. This bottleneck created a company-wide slowdown. Simply by rearranging the system so that the women could fill empty cartons *without* picking them up, the plant speeded up the operation, eliminated the bottleneck, restored over-all production speed, *and* brought the job within the comfortable reach of the women!

Further suggestions

The supervisor may also:

Keep up older workers' ability and interest by renewed on-the-job training.

Improve his own rating and appraisal-interviewing systems—to prevent needless age problems and to provide quick help for those that do occur.

Encourage participation in training programs so that older employees can acquire new interests and possibly be transferred from production to a desk job.

Help older employees participate in medical programs, special counseling, educational instruction, and, possibly, geriatric research, available in some plants and in many communities.

When retirement looms

Eventually, infirmity or company policy may require the worker to retire. Most don't want to. They usually need both the activity and the income from work.

It is a paradox, Harland Fox has written in *The Harvard Business Review,* that, while medical science has added 20 years to the life expectancy of the American male since 1900—and made him a stronger man at 65—he has not been able to stay in productive employment as long as his grandfather—who was probably less strong—did. While life expectancy after 65 has increased a little over 10 per cent during this century, average length of employment has *decreased* 10 per cent.

Don't Slow Down!

The president of a prominent pharmaceutical laboratory has said:

I believe that we must do everything we can to resist the inclination to slow down the tempo of our living. I am convinced that if you will just sit and wait for death to come along, you will not have long to wait.

As a result of veteran employees' willingness to stay, plus their obvious capacity for work, many companies are taking another look at their retirement programs—especially those keyed to a specific age, like 65. In the future, it's likely that most retirement will be administered according to the individual's physical capacity, mental ability, and psychological interest in work.

Whether voluntary or not, however, separation of older workers from their jobs requires careful planning and tactful execution. Successful retirement is not a matter of chance. It requires planning for the obvious needs, like a good place to live, health conservation, some financial security. It also depends

upon the following two essentials:

A workable plan for the future.

Genuine interest and active participation in activity that can replace employment.

Be realistic

The supervisor's role is to help subordinates prepare to meet these needs later by reaching a realistic evaluation of the situation now. The employee preparing to retire must:

1. Recognize that growing old is a natural process. While it may introduce disability, it can also provide new opportunity. Retirement should be prepared for step by step so that it becomes a part of normal life, not a disruption.

2. Obtain exact information on company—and other—retirement benefits for which he may be eligible and rate his qualifications for them. In this light, the employee must understand the importance of a specific, personal financial plan.

3. Accept the fact that most elderly people have to lower their sights. Once the retiring worker accepts this, he can admit whatever need for readjustment he has—and go about making it.

4. Obtain the best current information on aging and retirement, from publications, health groups, local organizations and community resources, and nearby educational institutions.

5. Develop a constructive anticipation of retirement. The right attitude comes quickly and easily for the worker who participates in outside activities while he's still employed.

6. Try to develop his plans along with others facing the same problem. Again, the worker may need encouragement to join the social, educational, or religious activities of his preference at a comparatively early age—instead of falling back on them after retirement.

Counseling should start, some experts advise, as much as five years before the actual retirement date. Certainly, it must be a continuous program, which should answer questions, stimulate postretirement planning, and perpetuate, if not enlarge, the worker's outside fields of interest.

The supervisor can even lend a hand after the worker retires by calling on him, whenever possible, for jobs that use his skill, judgment, and experience. It's a good idea to keep a card file of retired workers who might be available.

It all depends

It should be clear, now, that physical age, by itself, is often unrelated to aging—which varies from worker to worker. "It all depends," as the grandfather said, "on how you feel."

Yet one aspect of the problem doesn't change at all. Older workers need to be needed. And industry needs more workers.

Combining these two major needs depends mightily upon the supervisor—and upon his taking proper action at the proper time. ♦

Help Yourself to BETTER HEARING

Electronic aids make life easier for the hard of hearing—and their friends.

NEARLY 17 MILLION Americans suffer from some sort of impaired hearing. Communications, emotional adjustment, and other problems of the hard-of-hearing person indirectly affect his family, friends, and associates.

But there is continual new hope for people with hearing impairments, according to Dr. Norton Canfield, member of the Advisory Board, American Hearing Society, and author of a new book on hearing.*

Those who are totally deaf may never be able to hear sounds, Dr. Canfield points out. However, for many millions, science and technology have provided the means for improving their hearing with mod-

**Hearing: A Handbook for Laymen.* Copyright © 1959, by Norton Canfield. Published by Doubleday & Co., Inc., $3.50.

ern medical and surgical treatment and the hearing aid.

All of us, at one time or another, use certain kinds of hearing aids. Sound movies, telephones, office dictating equipment, record players, tape recorders, public-address systems, language-interpretation devices, hi-fi machines, walkie-talkies, stethoscopes, electronic baby sitters —all these are aids to hearing. A person whose hearing is below normal can use an individual hearing aid to amplify sounds so that his hearing is improved.

In the past 25 years, wearable hearing aids have been compressed from bread-loaf size to the dimensions of a small matchbox. In the process, much greater efficiency has been built into them. Since 1952, the transistor has made possible efficient hearing equipment which is often so small that it can be built into the frames of eyeglasses or even worn directly in the ear.

Dr. Canfield points out that anyone whose hearing is impaired and is thinking of buying a hearing aid should consider the following facts.

See the doctor

Before he tries any hearing aid, the patient should have a competent otologist (ear specialist) evaluate his hearing. The otologist may recommend medical or surgical treatment.

New sounds

If medical treatment is ineffective, a hearing aid is the next step. It may enable the patient to hear many sounds that will seem new and strange because he has never heard them before—or hasn't heard them recently.

Once hearing becomes deficient, accurate sound patterns do not get through to the perception centers. Background noises which are part of the environment are gradually blotted out of the memory, and the deafened person exists in a quieter world. When he uses a hearing device, *all* sounds—wanted or unwanted—are amplified. To get the most satisfaction from his hearing aid, he must learn to submerge the unwanted sounds, such as background noise, and hear the desired sounds. A gradual introduction will help to speed the adjustment: The hearing-aid wearer might begin by turning the aid up slightly at first, then gradually increasing the volume.

Different sounds

A hearing aid will amplify sound, but won't restore hearing to normal.

A voice heard on the radio or telephone, even by a person with normal hearing, will sound somewhat different from the same voice heard directly. Thus, voices heard through a hearing aid will also sound different. They will lack some of the timbre and other qualities the wearer remembers from before his impairment. The hearing aid can be adjusted to overcome these defects partially, but it cannot overcome them completely.

It takes adjustment

Few people like their hearing aids at first. Time for adjustment is extremely variable, depending upon factors like learning speed, motivation, and mental agility.

The important point to remember is that communication will become easier with a hearing device. Instead of concentrating on the quality of voices, the deafened person can realize that it is the content of the speech, the meaning of the words and ideas, that bring him into contact with other people and the world around him.

Time and guidance

Selecting the best aid may take time and require expert guidance, although people with certain types of hearing loss may get satisfaction from any of the good aids immediately.

Ask some questions

If the doctor recommends a hearing aid, the prospective user should answer a number of questions before making his selection. In the first place, can the skin of the ear tolerate an aid? For the part that goes inside the ear, should a custom insert—which is easier on the skin—be made, or is it wiser to try a stock mold right away? If hearing is impaired in both ears, should an aid be used in both? If not, in which ear should it be worn? What about price, style, variety? A reputable firm, experienced in fitting hearing aids, can give at least provisional answers to these questions. The final answers will depend, of course, on the experience of the user. He may need to try several types before he makes his final choice.

What about an eyeglass aid? The use of transistors has made it possible to compress an efficient hearing aid into the temple bars of eyeglasses. Eyeglass aids are not as powerful as other types, but when they're properly fitted, they usually give great satisfaction to people whose hearing loss is not severe.

One further consideration: People who do not wear glasses all the time should remember that with this type of aid they sacrifice their better hearing every time they take off their glasses.

Types of receivers

Hearing-aid receivers (the part that directs the sound into the ear) are of two main types: air conduction and bone conduction. Most users prefer air-conduction receivers. However, a bone-conduction receiver does not require a molded earpiece, and may be preferable if the ear canal cannot tolerate an insert. In some cases, people cannot tolerate an air-conduction instrument because they hear annoying sounds that could be avoided with a bone-conduction receiver.

When the loss is severe, really good hearing is seldom obtained with a bone receiver.

Again, the choice will depend

upon the extent and nature of the hearing loss and on the results of trials by the patient.

Not everyone with a hearing deficiency can be helped by a hearing aid alone. If the hearing loss is severe, sound gets through to the inner ear; but the delicate mechanism that analyzes and passes it on to the brain is out of order, so that distorted sound patterns reach the brain. This makes understanding difficult or impossible.

These people can be helped by special training in using an aid and by learning to read lips. In some cases of loss of perception, the sound or vibrations produced by an aid may alert the deafened person to the fact that something is being said; then, if he has been trained in lip reading, he can turn toward the speaker and read his speech.

How long and how much?

How long can an aid be expected to function? Three to five years is about the life of present-day hearing aids. Models are constantly being improved. But if the user waits too long, by the time he gets a new one it may sound so different that he may have a great deal of trouble adjusting to it.

The costs of owning and operating a hearing aid vary considerably. Dr. Canfield advises the prospective user to get the one within his price range that gives him the most satisfaction. Good hearing is the most important consideration; so don't let the price be the only guide.

Let the buyer beware

There are many reputable and conscientious hearing-aid dealers. Others, not so conscientious, are all too ready to take advantage of the buyer's confusion, Dr. Canfield points out. "Don't check your intelligence at the door," he advises new buyers. "Beware of the extravagant promise and bait advertisement that appeals to the vanity and offers the impossible."

The buyer is entitled to know all the details about his new hearing aid *before* he buys it. He shouldn't hesitate to ask the dealer to write down the terms of sale to make sure he understands them clearly.

A one-year guarantee on the hearing instrument should be a minimum. The prospective buyer should read the guarantee carefully. He should know what it covers, and how much repairs and adjustments will cost after the guarantee runs out. He should also find out about the availability of repair service and cords, batteries, and other accessories that may be necessary.

Hearing centers

Hearing centers in many areas help people who would like to try several aids before they buy. If the buyer has access to a hearing center, Dr. Canfield advises, he should consult one of its experts whose

HOW MUCH HEARING?

Hearing ability can be classified in simple terms. Otologists have defined these varying degrees of deafness:

Normal hearing means, obviously, that your ear mechanism is working properly in all ways.

Near-normal hearing indicates that your loss is so slight that only an audiometer (a sensitive machine used to measure hearing) can detect it.

Slight loss is present when you begin to miss a few words in distant conversation.

Moderate loss exists when you begin to miss so much that you feel left out of things and your close friends notice that you're not hearing well.

If you have a *severe loss,* normal conversation is no longer audible, but speech can be understood if it is loud enough.

Profound loss exists when you can hardly discern words, no matter how loud they are when they reach the ear.

Complete loss means what it implies: that you can hear no sounds or speech.

service is directed toward hearing improvement—and not toward a particular product. The fee will be a good investment in the end. In an atmosphere free of sales pressure, the buyer can try different aids, get impartial answers to his questions, and learn the names of reputable dealers.

The world of sound

Once he has his hearing aid, he can start using it gradually or quickly. In general, the more he uses the aid at first, the sooner he will like it. The hearing aid is a limited instrument—it can do certain things and no more. But for most people with impaired hearing, an aid can improve hearing efficiency. Used with patience and intelligence, and with the guidance of professionally trained experts, the hearing aid can do a great deal to help hard-of-hearing people in their struggle to return to the world of sound. ♦

WE ARE ALWAYS PAID for our suspicion by finding what we suspect.
—HENRY THOREAU

A Language Machine Tools Understand

"ON KUL, ON SPN, GO RGT, TL LFT, CIRCLE/CTR AT, +2, +3, RADIUS, +5." The line above is no misprint. It's written in "APT," a language that machine tools can understand. Translation: "Turn on the coolant, turn on the spindle, go right with the tool on the left side along the circle whose center is located at x equals 2, y equals 3, with a radius of 5."

APT (for Automatically Programed Tool) is the end product of two years of intensive research at Massachusetts Institute of Technology. Cosponsored by the Air Force and Air Materiel Command, APT has enlisted the help of 19 U.S. aircraft plants. This 107-word, simple (no words of more than six letters) language is the heart of a revolutionary new system which enables a programer to write a general outline of a machining sequence by following an engineering drawing. The written-in-APT-language outline is punched onto cards, which feed the problem into a computer that translates the information onto a punched tape, which in turn automatically controls the movements of any machine tool equipped with numerical controls.

Basically, APT's advantage over more conventional methods of numerically controlling machine tools is that it eliminates the long hours a programer must spend calculating the moves of a machine tool and translating them into numerical form to be punched onto a tape. —*American Machinist*

"I don't get off here! I don't get off here!"

How To Climb Financial Mountains

Union Dime Savings Bank
New York

IT'S EASY to walk on level ground, but it's always harder to climb a mountain. And life is full of financial mountains!

To name a few—insurance premiums, property taxes, extra income tax, tuition fees . . . these are the peaks that loom large on particular dates throughout the year.

Most people make sure they have the money to meet their current expenses for rent, food, clothing, and regular household bills. But it's those occasional peaks that cause the trouble. If you keep a written budget, you know what you're up against; but if you have only a vague mental picture, you may not realize just how much this annual expedition through your mountain range *does* cost.

What's the solution? Easy does it. Just climb your financial mountains gradually each month and you'll be walking on level ground all year —and you and your budget won't be strained.

Follow these three steps and you can conquer any financial mountain range on your horizon.

1. Don't try to climb the Himalayas when your income is better suited to the Adirondacks. It's smart to limit the over-all yearly expense to what you can handle without borrowing.

2. Make sure you estimate the highest point each mountain peak is likely to reach and then add up the totals for the year.

3. Divide the year's total for all items by the number of pay days and deposit that sum each pay day in a *special savings account.*

YOUR SPECIAL SAVINGS ACCOUNT

Open a special account for items like these:

	Yearly Cost
Estimated state income tax (if not withheld)	$
Property taxes	
Life insurance premiums	
Other insurance premiums	
Car—Insurance, plates, depreciation	
Home repairs, etc.	
Gifts (Christmas, birthdays, anniversaries)	
Tuition fees	
Vacation	
Dues—Club, etc.	
Medical and dental	
Church and charity	
_____	
TOTAL FOR THE YEAR*	$
Number of pay days	

* Total divided by number of pay days gives amount to deposit each pay day.

SPECIAL-SAVINGS-ACCOUNT RECORD

Jot down the due dates of your financial mountains. Then keep a record of your payments.

Date Due	Date Paid	Description

Digests of the month

When You Have To Criticize

AT BEST, criticizing and correcting subordinates is an unpleasant task. But it has to be done—if it isn't, the result will be lowered morale and performance. It can be done with maximum effectiveness and minimum pain if you follow some important principles:

1. *Get the facts before taking action.* Without all the facts in the case, intelligent criticism is impossible. And sometimes the facts will show that criticism is not needed at all.

2. *Get behind the facts.* It is important to investigate possible extenuating circumstances that may have a bearing on the situation. Try to find out the whys and wherefores as well as the bare facts themselves.

3. *Clear your mind of preconceived ideas.* Don't begin a corrective interview with a closed mind.

4. *Plan your interview.* Know the questions you want to ask, and tailor your interview approach to fit the subordinate you are criticizing.

5. *Begin with a question.* Avoid opening the interview with anything that even sounds like an accusation. Find, instead, a question that will put the employee at ease. For example, "Can you put me straight on a couple of points that have been bothering me a bit?"

6. *Listen for answers.* By listening closely to the employee's side, you can see where the areas of uncertainty or disagreement exist.

7. *Control yourself.* Planning, conducting, and following up a corrective interview require emotional control. On the other hand, the supervisor should not go to the other extreme—overconcern with being liked. More than one corrective session has failed because the supervisor didn't want to bring up an unpleasant situation or hurt someone's feelings.

8. *Don't argue.* If the corrective interview degenerates into a battle of words, it will accomplish exactly nothing.

9. *Be consistent.* It is your job to see that employees meet standards of performance and conduct. If you enforce the rules one day and look the other way the next, you can say goodbye to teamwork, loyalty, and cooperation.

When he was asked, "What do you do to follow up a corrective interview?" one manager replied, "I just hope that the ruffled feathers will smooth down and that it was all worth the effort."

Other managers have done more than *hope* the corrective interview will achieve the desired results. One fol-

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low-up aid that is useful is a check list (see below) for analyzing what the subordinate says during the interview. The basic purpose of the check list is to get at the real causes of the problem. It can thus be used as a guide to the future training and development of the employee.

• *Edward M. Ryan*
AMERICAN BUSINESS
July, 1959

CHECK LIST FOR FOLLOWING UP A CORRECTIVE INTERVIEW

Analyze the interview and check the reasons the employee gave for his failure.

A. Did not know what was expected of him

- ☐ 1. Full details of the job were not explained.
- ☐ 2. Details were explained but forgotten.
- ☐ 3. Company policies and expected employee conduct were not explained.
- ☐ 4. They were explained but forgotten.

B. Did not know how to do what was expected of him

- ☐ 1. Too much skill and training required.
- ☐ 2. Was not properly instructed.
- ☐ 3. Had insufficient practice in applying instructions.
- ☐ 4. Job details were too complicated to remember.
- ☐ 5. Failed to pay attention to instruction.
- ☐ 6. Other. _____

C. Was unable to do what was expected of him

- ☐ 1. Illness prevented good job performance.
- ☐ 2. Job was too tiring for his strength.
- ☐ 3. Too worried and nervous to do a good job.
- ☐ 4. Didn't have sufficient time to do the job right.

D. Would not do what was expected of him

- ☐ 1. Had resentful attitude toward supervisor.
- ☐ 2. Was generally dissatisfied with job.
- ☐ 3. Maintains that the work in question is not part of his job.
- ☐ 4. Says nobody else follows the rule he's broken.
- ☐ 5. Felt the job was too monotonous.
- ☐ 6. Preferred to do things the old way.

More and More Managers

THE RATIO of managers to workers has jumped sharply during the postwar years—and it seems to be headed even higher.

That's the key conclusion drawn by two Princeton University researchers from a detailed study of 50 U.S. companies. The two researchers, Dr. Frederick Harbison, director of Princeton's industrial-relations section, and Dr. Samuel E. Hill, regard the trend as a logical reflection of generally rising industrial productivity: Fewer production workers are needed to turn out a specific amount of product.

Executives were defined in the survey as "all people whose primary job is supervisory, embracing personnel from foremen to chief executives."

More than two thirds of the companies surveyed reported increases in the ratio of executives to total employees during the 1947-1955 period that the study covered. Among those firms, the average increase in the proportion of executives was 32 per cent. If the study had been extended through 1958, maintains Dr. Harbison, it would have indicated that this increase was continuing.

Administrators—staff assistants to executive personnel—also increased as a proportion of the workforce in the 1947-1955 period. Two thirds of the 50 companies reported increases in the proportion of administrators; the average increase for this group was 52 per cent.

The researchers found that in companies where the number of managers and white-collar workers increased faster than the number of production workers, there were rapid gains in productivity. Conversely, companies where the number of managers and white-collar workers showed little change in relation to the number of production workers reported only slow increases in productivity. Other factors tending to boost the proportion of managers and white-collar workers, say the researchers, are decentralization of managements and diversification of product lines.

The study also points up the growing importance in corporate workforces of professional employees—such as engineers, scientists, and lawyers—and technicians. Three quarters of the firms surveyed reported increases in the proportion of professional employees during the 1947-1955 period, with the increases averaging 65 per cent. Technical personnel, who perform subprofessional tasks, were studied at 22 firms. Of these, 15 reported increases in the ratio of technical workers to total employees.

Of the 50 companies studied, 42 showed increases in the proportion of white-collar workers of all types dur-

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ing the 1947-1955 period. The increases averaged 24 per cent. On the other hand, production workers increased as a percentage of total employees in only five of the companies studied.

The Princeton researchers' findings are supported by government figures reporting that the number of production workers in all U.S. manufacturing increased about 1 per cent between 1947 and 1957, while the number of nonproduction employees jumped 55 per cent.

As an example of how a firm increases the number of its executives when it decentralizes its management, the study cites a machinery-manufacturing company that increased the proportion of its managers by 67.6 per cent in the period between 1947 and 1955, while the proportion of its production workers declined 3.9 per cent. This happened, the researchers say, because the company established a number of separate product divisions, one for each of the principal machines marketed by the company.

When a galvanizing firm made a shift between 1951 and 1957 from the batch process of production to continuous galvanizing, its proportion of managers rose by 37.8 per cent, while its proportion of production workers declined 16.3 per cent. At the same time, its output per employee increased nearly four fold.

Dr. Harbison believes that a company's growth in size is not in itself responsible for an increase in the proportion of managers and white-collar workers. He found that the proportion tended to remain unchanged or even to decline in companies that made few changes in products, methods, or organizational structures.

• THE WALL STREET JOURNAL
Vol. 153, No. 97

Decibels and Performance

THE STRESS produced by noise can be measured in concrete effects on performance, according to a report by Professor Harry J. Jerison of Antioch College, in *The Journal of Applied Psychology*.

In experiments lasting an hour and a half, the noise was stepped up from 80 decibels (representing relative quiet) to 110 decibels (representing noise).

In the first experiment, the subjects had to monitor a panel of clocks, pressing a switch under each clock when its hand varied from the normal performance. The subjects operating under the noisy condition made many more mistakes.

In another experiment, subjects were asked to press a telegraph key at what they judged to be ten-minute intervals (while performing another task). Their time judgments were distorted by noise. Subjects working in the quiet responded on the average of every nine minutes; those working in noise, every seven minutes.

The effects of noise were considerably more noticeable during the final half hours of the one-and-a-half-hour tests—showing that prolonged exposure to noise caused accumulated fatigue.

"What Will It Mean to Me?"

IF YOU TELL an employee that the machines in his department are going to be replaced by a new type next month, his automatic response—whether expressed aloud or to himself—will be: "What will that mean to me?" You can expect a similar response to the announcement of a new policy, a new procedure, new company rules, or any other change.

The supervisor who anticipates this question and answers it to his subordinates' satisfaction can win acceptance to necessary changes that otherwise might be balked by stubborn resistance. Even if the change is not going to benefit an employee directly, he'll probably go along with the move if its importance is made clear to him by a thorough explanation.

For example, let's say that the supervisor of a processing department has to tell his employees that they will be required to wear company-supplied uniforms, so that they won't contaminate the liquids they handle.

There may be objections from some of the employees. Others will want to know how the change is going to benefit them. To answer the objections and the questions, the supervisor should be sure to cover three aspects:

1. *The reasons for the change.* In this case, the supervisor might say: "Too many batches of material have been contaminated, and customer complaints have increased in the last six months. Investigation has shown that the contamination is caused by dirt, dust, and grease from our own clothing. The engineering department experimented with several methods for screening the material, but none of them worked. The only solution is for us to wear clean uniforms."

2. *The short-range implications of the change.* "There may be some problems getting used to uniforms, but they should last for only a week or so. There may be some people who just don't like the idea of wearing the same kind of outfit everyone else wears. But in other companies where uniforms have been adopted, everybody has eventually preferred them."

3. *The long-range implications of the change.* "By supplying work uniforms, the company will cut down on contamination. But besides, the change is also going to take a load off your home laundry bills and your personal outlays for work clothes."

When he's explaining a change, the supervisor should never try to hide its negative aspects. In this particular case, the supervisor accomplishes two objectives by frankly discussing the inconvenience or discomfort some of the employees might feel. First, he shows that he's giving a realistic and honest appraisal of the change. Second, by bringing the causes of possible dissatisfaction into the open, he keeps resentment from growing below the surface.

One of the most important changes a supervisor must explain is a new cost-cutting effort. Recently, a study was made in which supervisors used three different themes in explaining the implications of cost cutting:

1. Increased company profits.
2. Increased job security.
3. A means of keeping old cus-

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tomers and bringing in new ones.

Interestingly, the third reason was found to be more effective with employees than either of the others. The need for customers hits home with employees because they see the economic implications. Today's employee sees the clear connection between his own interests and any effort to gain more customers.

• *Auren Uris*
TEXTILE WORLD
July, 1959

You Can Improve Your Voice

DO YOU KNOW what your voice sounds like to other people? There's a simple way to find out: Get hold of a tape recorder and record your conversation with someone. If you're not satisfied with what you hear when you play it back, you may decide to improve your voice.

"I can't change the voice I was born with," you may say. But you can, by putting three principles of good voice production into action:

1. *Control your breath.* Your voice is supported by air. If you are a shallow breather and your air comes only from the upper chest, your voice may be thin, uncertain, and difficult to hear. You will also be susceptible to vocal fatigue because you are pushing your voice out with your throat muscles instead of your abdominal muscles.

These exercises will help your breath control:

Sit erect. Push out your abdomen as if you were trying to burst your belt. Pull down on your diaphragm (the muscular area between your abdomen and chest). Inhale slowly and deeply, pushing out your lower ribs as far as possible. Now exhale slowly and steadily through your mouth. Repeat this process until you are familiar with the sensation of diaphragmatic breathing. It is a key factor in improving your voice.

As you exhale, count as far as you can at a slow, steady rate. Stop just before your breath is gone. Do this a few times twice each day for a week. You will probably find you can count a little higher each day.

This exercise will help you control your breathing so that your words come out smoothly and evenly without strain.

2. *Relax your throat.*

The muscles in your larynx or "voice box" are controlled by your nervous system. This is why emotional disturbances are reflected in your voice. For example, the pitch of your voice usually rises when you are angry or excited. That's because fear, anger, nervous tension, and other emotional factors often cause your throat muscles to tense and contract.

If your speaking muscles are tense for long periods of time, you will experience hoarseness and voice fatigue. And you might be doing some actual damage to your vocal cords.

With relaxed vocal cords, you can talk longer and more clearly. Here is an exercise to help you achieve throat relaxation:

Sit erect, then let your head drop forward. Let your jaw drop open. Shake your head from side to side until your jaws flop. This is how your muscles feel when completely relaxed.

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Straighten up and yawn gently several times. Feel the relaxation in your jaw and throat? This is the way they should feel when you are speaking. Now open your mouth as if to yawn and while you exhale say (be sure to project the tone):

"Gog—skol—mog."

Here's a test that will tell you if your throat is too tense:

Standing in front of a mirror, open your mouth and place the tip of your tongue lightly against the back of your lower teeth. Without moving your tongue, say "ah." If your throat is open properly, you should be able to see clear to the back. If not, your throat muscles are too tense.

3. *Keep your mouth flexible.*

Most speech difficulty lies in the mouth. Lazy speaking habits result in mumbling, slurring, and unintelligibility. Failure to move the lips enough is a common fault.

Try these tongue twisters:

Robert bought rubber baby buggy bumpers.

She stood on the balcony, inexplicably mimicking him hicupping and amicably welcoming him in.

If you can say both lines fairly rapidly and without a slip, your speech habits are all right. If not, you need improvement.

You'll help your enunciation if you concentrate on consonants. For example, if you want people to remember your name, be sure to sound the consonants when you introduce yourself. If your name is Sheppard, don't say Sheppar; if it is Kent, don't say Ken.

How fast you speak affects the intelligibility of what you say. Speaking too rapidly can result in slurring, and too slow, steady a rate is monotonous.

Vary your speed as you go along. A pause after important ideas will help to emphasize them.

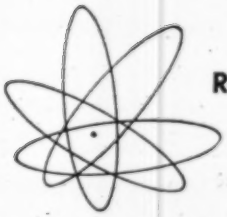
If you pitch your voice abnormally high or low, it may distract your listeners. To find your optimum pitch, try singing from the lowest note you can produce to the highest. Your normal pitch is about one quarter of the way up from the bottom. Changing your pitch slightly to match the meaning of your words lends variety to your speech.

Your voice is your best salesman, and it pays to take care of it. Don't try to shout above a noise. Continual shouting can damage the vocal cords and cause hoarseness. If you experience persistent hoarseness, consult a throat specialist. Do not try any voice exercises without his advice.

• MANAGEMENT METHODS
July, 1959

THE TRAIL OF BUSINESS PROGRESS is littered with the debris of outworn management devices. . . . Plans, systems, and concepts have a rate of obsolescence, just as a piece of machinery does. . . . Originally serving appropriate purposes, they tend to become encrusted with habit and tradition to a point where they actually become deterrents to fresh thinking.

—M. P. McNAIR



RADIOISOTOPES:

Atoms for Industry

RADIOISOTOPES, once considered mere by-products of atomic reactors, are now used in a wide range of applications that benefit almost every area of our lives. The daily paper we read, the floor covering we walk on, and the car we drive, with its tires, lubrication, and gasoline, have all been improved by the use of radioisotopes.

These radioactive atoms are also arming the physician with improved diagnostic and therapeutic techniques in the battle against disease. They are equipping agriculturists with better research tools in the struggle to feed the earth's increasing population.

Radioisotopes have this all-pervading influence because of their unique property of emitting penetrating radiation. They can be detected in almost incredible dilution. For example, one ounce of radiophosphorus atoms would cost $10 billion. Yet important chemical and medical experiments have been conducted with only one penny's worth.

The radiation from some radioisotopes can also be detected through considerable thicknesses of matter. They may be detected outside a patient's body or through walls of thick vessels or welded pipes. The radiations, on passing through matter, are absorbed to a greater or lesser degree by variations in the material. This fine degree of absorption can be detected with almost unbelievable discrimination by sensitive instruments.

Radioisotope gauges have universal application; almost every item in the kitchen may have been produced with their aid. They are used to control the thickness of soda-cracker dough in a bakery and the fat content of canned meats for baby food. Cardboard cartons and paper bags are controlled so that they are more uniform and less likely to tear. Almost everything manufactured in sheet form—paper, plastic, metals, adhesive tape, rubber, sandpaper—is now improved by isotope gauges.

Besides helping on the production line, radioisotopes are giving engineers information that is helping them improve product design.

A familiar use is the study of wear of piston rings, valves, crankshafts, and other parts of automobiles and lawn mowers. By making a piston ring radioactive, for example, and measuring the almost infinitesimal amount of radioisotope that appears in the crankcase oil after a trial run of the engine, it is possible to determine the rate of wear in a few hours rather than the many days, even months, that might otherwise be required. Improved lubricants, as well as engine

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design, can be readily evaluated. The result: longer-lasting and more reliable equipment.

Another appliance whose design is continually being improved by radioisotope tracer studies is the washing machine. By using various kinds of slightly radioactive dirt to soil a variety of clothes, engineers can determine the efficiency of the washing operation, the effectiveness of various soaps and detergents, or even the ability of different textiles to shed soot, grease, and dirt.

Radioisotopes are also important in improving the growth of food crops. For example, they help the farmer by developing new varieties of crops. This is possible because intense radiation causes mutations in growing parts of plants and in seeds. Brookhaven National Laboratory at Upton, Long Island, has a large radiation field in which thousands of plants of all types grow in concentric circles around an ordinary-looking pipe. Into this pipe, from a safe container underground, can be raised a radiation-cobalt source. Under the influence of gamma radiation, the plants develop mutations. Although most are useless or even harmful, occasionally one is of great value to plant breeders.

The third great area in which radioisotopes are benefiting mankind is medicine. Although it is known that body processes are fundamentally chemical, their complexity often defies analysis. Radioisotopes are ideal tracers for investigating these life processes.

Atomic tracers have been used to study the production of penicillin and its effects in treating disease. Radioisotopes are being increasingly used by private physicians in clinical diagnosis. About one million patients a year are having various conditions diagnosed with radioisotopes. A major use is the diagnosis of various thyroid conditions with radioiodine. Tracers are used in such diverse studies as the healing of a bone fracture and the penetration of an inhalant to relieve colds.

Radioisotopes are also being increasingly used in the treatment of diseases like cancer. Large teletherapy machines, which expose tumors to radiation from a distance, use radiocobalt. More than 200 of these machines are in use to supplement lower-voltage X-ray-therapy machines. In the form of radioactive needles and thread, radioisotopes can also be placed directly into a tumor to destroy it by intense internal radiation.

Radioisotopes in solution or suspension can be introduced into body cavities to control symptoms and alleviate suffering. Radiogold is used in this way to control excessive fluid formation in abdominal cancer.

The length to which radiation research is being carried is shown by current studies on the treatment of leukemia, a disease of the blood and bone marrow. Medical scientists are attempting to destroy the malignant bone marrow of a patient by radiation, and then to replace the marrow with normal marrow transplants.

The Atomic Energy Commission feels that radioisotopes are far from realizing their potential benefits, especially in industry. Because of this, an Isotopes Development Program has been established with the principal aim of accelerating industrial applications. This is being accomplished through support of research and de-

velopment and through grants to colleges and universities to help them establish courses in radioisotope technology.

With the impetus of increasing recognition and the development program of the AEC, radioisotope applications are sure to increase rapidly.

• *Paul C. Aebersold*
NATIONAL SAFETY NEWS
July, 1959

Does Emotional Stress Cause Illness?

DO THE PSYCHOLOGICAL stresses of life cause physical illness? Is a person who loses a parent, or has had marital troubles, or suffers severe financial loss, more likely to come down with some physical disease than others whose lives are more tranquil?

It's not necessarily so, says a team of researchers at the Washington University School of Medicine. They base their contention on a study of 106 healthy women who had just had babies at the St. Louis Maternity hospital. These women were asked about stressful events that might have happened to them during the previous year—such as marital discord, separation from members of family, sickness or death in the family, and general social and economic stress, such as a husband's unemployment. It was found that on the average, each woman reported about three such events within the past year. This is about the same frequency as has been reported for sick subjects in other studies cited by the Washington University group.

"Have sick people really met more than their share of life's stresses?" asks Dr. George E. Murphy, head of the research team. Not according to his findings. "Potentially upsetting things are happening all the time to nearly everyone, perhaps to just the same extent as found in sick people reported in psychosomatic literature."

It is, of course, possible that some people are more vulnerable than others, and that these people may be hurt by stresses that leave others untouched, Dr. Murphy concedes. But, he contends, the relationship of stress to illness has not been proved. Further study is needed.

This is a subject on which there are many differences of opinion. As a mild example, here is a recent finding of Dr. Maury D. Sanger, assistant clinical professor of allergy at the Albert Einstein Medical College. Dr. Sanger found that a rash on the ring finger underneath the wedding ring might be an indication of marital strife, rather than an allergy to the gold or platinum in the ring, or even to dirt or soap that might be trapped under the ring.

Shifting the ring from the left to the right hand rarely caused the rash to shift, Dr. Sanger said. But once the ring was taken off, the condition usually cleared.

The Swift Completion . . . ?

U.S. MAIL still travels at a horse-and-buggy pace. A recent survey by *Industrial Development* magazine indicates that the average travel speed for first-class mail—from time of postmark to actual delivery—is 12 miles an hour. The survey was based on letters posted in cities throughout the country.

Letters traveling greater distances showed higher average speeds, apparently because handling time is a smaller part of the total time en route. The average speed for first-class letters going more than 500 miles was 16.1 miles per hour. For letters going less than 500 miles, the average speed was 9.8 miles per hour. Between Birmingham and Atlanta, a distance of about 150 miles, one first-class letter took 85 hours, for a net speed of 1.8 miles per hour.

Transit time for first-class mail between the same cities varies widely. For example, delivery times for letters from New York to Atlanta ranged from 38.5 hours to 109 hours.

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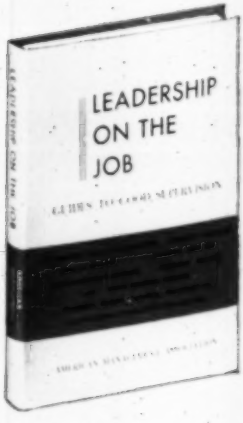

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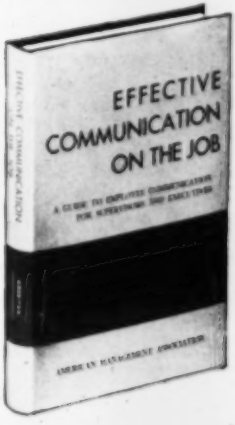

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